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# INTERNATIONAL COTTON BULLETIN

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We are told to believe that Tex's farmer will sell his cotton at as quickly as it is ginned which is likely to occur in fall or in early September. October, but everywhere, probably, increases price. This is larger quantity of the crop will be sold later this year, and with prices so low as the leader believes he said has promised its support.

Spinners should not be surprised by the heavy early cotton imports they must not be taken as an index of the rate of importation. These are being imported rapidly direct from countries having quantities available and are being shipped now.

We are obtaining additional reports from other States previously visited by us and shall add them to our full statement of the position of the whole American belt.

Yours faithfully,

AKHILUR ROSTIK ARNO S PT FIRST

By cable from New York U.S.A. August 21 1923

Dear Sirs

In continuation of our cable from Dallas we have to report that the indicated crop of the whole of the cotton belt appears to be at present estimated at 11,000,000 bales. Part of the Mississippi River has been running in creating ideal conditions for boll weevil and armyworm and in the rest the damage has been even more severe than last year. I continue to wish to see whether conditions would further reduce the crop.

We are again informed that cotton is on the market materially anticipated next month.

Yours faithfully

AKHILUR ROSTIK ARNO S PT FIRST

Our itinerary in U.S.A. was as follows:

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|------------|---|
| July       | 3—Arrival in New York   |
| " 5 to 9   | Interviews with cotton merchants, bankers, etc., in New York  |
| " 10 to 13 | Interviews with cotton manufacturers in Boston  |
| " 14       | Interviews with cotton manufacturers in Providence, R.I.  |
| " 15 to 18 | Interviews with Government officials, especially in the various sections of the Department of Agriculture, Department of Labour, Bureau of Agricultural Economics and Bureau of the Census, at Washington, D.C. |
| " 19, 20   | Interviews with cotton manufacturers at Charlotte, N.C.   |
| " 21, 22   | Raleigh, N.C., motor tour through North Carolina  |
| " 24       | Hartsville, S.C., motorizing through district   |
| " 26       | Atlanta, Georgia and Athens, motorizing in both districts   |
| " 30       | Memphis, Tenn.  |
| Aug        | 1, 2—Motorizing through parts of Arkansas to Scott, Miss.   |
| " 3, 4     | On Delta and Pine Land Company of Mississippi, Scott, Miss.   |
| " 5        | Motorizing to Tallulah, La.   |
| " 7, 8     | Houston, Texas, motor to Sugarland and district   |
| " 9        | San Antonio, motorizing in neighbourhood  |
| " 10, 11   | Motorizing to New Braunfels, San Marco, Austin, Taylor, Georgetown, Temple, Granger   |
| " 12       | Waco  |
| " 13 to 15 | Dallas, Fort Worth and Greenville, Tex., by motor.  |
| " 16       | Oklahoma City   |
| " 17       | Little Rock, Ark., motorizing in district.  |

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\* The Department of Agriculture published a week later the indicated crop at that time as being 10,770,000 bales.

- Aug. 18, 19—Memphis, Tenn.  
 „ 20 to 22—Journey to New York.  
 „ 23, 24—Interviews with merchants in New York.  
 „ 25—Embark at New York.

As regard the crop prospects we are satisfied that the information, as conveyed by the three cables, was a correct indication of the outlook at the time when we forwarded it, but it must be understood that new circumstances may arise at any time which will affect the crop to some extent.

It must be borne in mind, of course, that the anticipated set-back in prices which our informants expect to take place in September/October, may be seriously affected by a lack of contracts, scarcity of spot cotton and market speculation.

Letters describing in detail what came to our notice during our journey were sent from time to time to the Affiliated Associations, where they may be inspected by the individual members.

In the course of our journey we have obtained a good deal of information other than that relating to crop prospects, and we deal with such in the following statements :

1. The Future of the United States' Cotton Production.
2. The Cotton Growers' Co-operative Movement.
3. Explanation of the Condition and Acreage Reports of the Department of Agriculture, Washington, D.C.
4. Delta, Land and Pine Company of Mississippi, Scott, Miss.
5. Latest Cotton Warehouse System and Fire Insurance.
6. Government Insect Pest Experiment Station at Tallulah, Ala. (owing to lack of space this article will appear in the next issue of the "INTERNATIONAL COTTON BULLETIN").

MANCHESTER,  
*September 3, 1923.*

ARTHUR FOSTER. ARNO S. PEARSE.

## I.—The Future of U.S.A. Cotton Production.

Restriction of labour immigration into U.S.A. being originally intended as a means of Americanizing America, has been of course, seized upon by organized Labour, as a counter move to the Protectionist policy of the Industrialists of the country. Labour realizes that the 3 per cent. limitation of admittance of foreigners is the best weapon to keep up wages and increase them, and as long as the Protectionist Tariffs exist, so long is the limitation of immigration likely to last. But it is not only Labour which is keen to adhere to the present policy of restricting the immigration, but also other classes, as is evident from a leading article of the *Chicago Daily Tribune*, dated August 21, 1923, which concludes with the following paragraph, after lamenting the fact that less than 25 per cent. of Chicago's white population is American-born :

" It is intelligent for us to restrict immigration for at least a full generation, that the great mass of Americans shall be of American-born parentage. Then, and not until then, will we be on the way to becoming a homogeneous people."

The South does not get any considerable portion of the 3 per cent. influx of foreigners : there are a few Mexicans coming in, mostly surreptitiously, over the Rio Grande River to help yearly in the picking of the Texas crop, but most of them return at the end of the season. Recent official figures are not available as to the migration of the negro from the Eastern States, but in Mississippi we were told that this year alone 100,000 had left, and in Georgia, whose empty and neglected houses show that a large exodus has taken place in past years, the figure for the last two years' migration was put as high as 100,000.

The result is that wages even in the South are high. As an example the cotton picking wage may serve, which this season in Texas commenced at \$1 per 100 lbs. seed cotton (against 75 cents in previous years) and as the cotton becomes scarce the rate is sure to be raised to \$2 and more. As 100 lbs. seed cotton represent about 33 lbs. lint, it may be assumed that the average season price for picking 1 lb. of lint is almost 2d. per lb.

Whenever the American industries are extending and require new workpeople, they are bound to have recourse to the South, as has been demonstrated this last year. The 3 per cent. per month immigration-quota does not prove anywhere near enough to supply the additional requirements for the industries, for in view of the greater spending power of the mass of the American people, due to a large extent to the saving caused by prohibition, American industries are likely to expand more and more. (Prohibition has not prevented the rich people from obtaining drink, but certainly the masses.)

We make it a point to ask in every State which we visited as to what would be the price at which cotton growing pays the farmer. Of course this item varies even on different farms in each State, but everyone will agree that the cost of production since 1918 in consequence of increased living expenses has risen materially, and that reliable figures relating to that year should be admissible for our consideration. " Bulletin 896 " of the U.S. Department of Agriculture gives us the cost of producing cotton from 842 records in 1918, and we learn from these that in Georgia the average came to 21.78 cents per lb. lint, in Alabama 32.31, in South Carolina 25.39, and in Texas 21.42. In Mississippi we were told that 30 cents for short staple and 35 cents for 1 $\frac{1}{2}$  in. and above would be required ; in North Carolina 25 cents was given, but in the centre of Texas 20 cents was indicated as the price at which farmers could possibly make both ends meet. The yield per acre varies each year, and as this dictates the cost of production to a large extent, we must bear in mind that the yield during the last two years has been much lower than in 1918. We have further to add at least an amount for expenses from point of production to point of consumption, e.g., to New York 2 cents per lb., and to the European mills a much larger figure, varying with exchange rates, freights, etc.

The yield per acre has been so drastically reduced owing to boll-weevil, army-worm, etc., that cotton growing in some places of Georgia would not pay at even 60 cents per lb., and in Arkansas and Mississippi we met farmers who said that at 40 cents they would not get their money back. Such statements may be exaggerated, but certainly the figures even at

25 per cent. less prove that under the sway of the boll-weevil such States cannot be called *economic* producers of cotton, and the sooner they make up their minds to find substitute crops the better for them.

There are only two known remedies for combating the weevil and these have to be employed simultaneously, viz., very intensive cultivation, i.e., deep ploughing and the use of plenty of fertilizers, and secondly, liberal and frequent applications of Calcium Arsenate. Both cost a great deal of money (as an average figure of the cost of fertilizing and poisoning we may safely reckon \$10 per acre, though of course this figure varies every year on each farm) but what is more serious, both remedies require much more labour than heretofore, and that cannot be had as we have seen. It is no use saying that a remedy against weevil has been found. There is not one expert who believes that the weevil will ever be exterminated by it, and this year, in spite of the wide-spread campaign of propaganda in favour of Calcium Arsenate, it is estimated that 1,500,000 acres are being treated out of the 38,000,000 under cotton. The boll-weevil has come to stay in the cotton belt until some, at present unknown, method is found to combat it; the pest certainly is being somewhat checked by artificial means, but these are very costly, and owing to scarcity of labour and low yields not feasible in all infested fields. A moist hot climate such as the Eastern States have, and which has always been considered excellent for growing staple cotton, is also ideal for the boll-weevil. The numerous woods surrounding the fields offer excellent hibernating quarters for the weevil.\*

No wonder that farmers have lost heart and that they are at a point of desperation. Three cotton farmers, one in Georgia and two in Mississippi, approached us with a view to finding them situations on plantations in Brazil or Africa.† Many cotton growers in U.S.A. look to Brazil as a coming competitor: they realize that good land in Brazil can be had at from 25 cents to about \$1 per acre, and wages are about 25 cents per day; no fertilizers are needed and the yield per acre is more than twice that of the average of the U.S.A., in short, staple cotton can be produced in Brazil at 12 cents per lb. against 30 to 35 in U.S.A. Similar figures apply to several other countries in the world, notably in Africa. Is it not self-evident under such conditions that the future of cotton growing in U.S.A. looks very dismal? And yet in spite of the weevil infestation, of the necessity of the use of fertilizers and of the high wage level, the price of good cotton land in Georgia, Arkansas and Mississippi was quoted as ranging from \$100 to \$150 per acre. Nothing will stimulate more the growing of cotton in non-American countries than the prevailing high prices, which are still governed by U.S.A. on account of the bulk of the crop coming from there, but such a position is bound to fade away, though it may take place gradually.

*"The South is losing its cotton crop because the small farmer can no more bring forth, on an economic basis, the cotton required by the world";* that was the foremost impression which forced itself on our minds throughout the whole of our journey, and it must be remembered that the small farmers are the main producers.

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\* We hope to deal more explicitly in the next issue of the INTERNATIONAL COTTON BULLETIN with the boll-weevil and other cotton insect pests.

† A cotton merchant in Texas told us that he contemplated opening a house in Brazil, as he held the view that in the long run U.S.A. could not compete with the cotton from that country.

The migration of the negro was described to us by many (mostly by men living in the North, amongst others by a high official in the Labour Department) as a great blessing in disguise. They argued that the nigger never did work, that he merely scratched the soil and that the white population in the South was encouraged to laziness through the presence of the nigger, to whom all menial work was given to do. They argue that as the nigger is leaving the South, the great American industries in the Centre and North will profit by this labour. He will learn to work in the factories, his standard of living will be raised, and the white man in the South will awaken from his lethargy and set himself to work, not in the old-fashioned way, but with modern up-to-date agricultural machinery, thus performing the work of many niggers and producing cotton at a lower price than ever before. Even if such a picture could become true the introduction of such appliances would take years, and meanwhile the cotton industry of the world would have to stop a great portion of its machinery for want of cotton.

But the geographical formation of most of the Eastern cotton States would not permit the use of such machinery as the fields are small and mostly situated in undulating places on slopes, and besides, the farmer has become so impoverished through a series of years of failure that he will not be in a position to buy the necessary implements.

The only States of the U.S.A. which appear to us to offer a possibility of a continuation or extension of cotton growing are Texas and Oklahoma. Here the employment of modern machinery is feasible and the white population is not only in excess of the coloured labour but accustomed to work, the farms are larger and the cost of production is even now cheaper than on the Eastern side, and this latter can be lessened considerably through the introduction of machinery. The advent of a mechanical cotton picker would at once make Texas a cotton State able to produce 50 per cent. of the present American crop and at a price that would enable American cotton to compete with the new countries. It must, however, be remembered that a large part of Texas, owing to the weather conditions, makes a crop only three years out of five. Once the water conservancy scheme in the West of Texas has been carried out, that part of the State should become a good supplier of cotton.

The migration of the negro is not to be attributed solely to the smaller wage which he earns in the South, but also to the fact that he is being treated there as a different being from the white, whilst in Chicago, Washington and other cities, he is almost on a par with the white man. Besides this, there is the novelty of city life and the general social standing in those distant parts which have a powerful attraction to the nigger. It is true many of them may wish to return, but an organized campaign for this purpose would be necessary and could not be undertaken except at great expense.

Throughout our whole journey the great chances which Africa, Brazil and other countries have at the present time in promoting and extending cotton production have been constantly realized by us. The cotton industry in all countries, even in U.S.A., must undertake very energetic measures to encourage the growing of cotton wherever it is possible on a commercial basis, for any student of American conditions must acknowledge that in a few years from now we shall not be able to look to U.S.A. for the supply of more than half her normal crops, and this quantity, of course, will be ear-marked for her own domestic requirements which have almost reached that quantity.

Inflation of wages has gone on steadily in U.S.A. and is likely to do so still further, whilst Europe has worked hard to reduce wages. Europe's customers are small farmers in different parts of the world whose crops have for several years now been sold at or near pre-war prices ; they cannot afford to buy their normal requirements of any article which was manufactured from a raw product that was raised at an inflated wage cost, or in a more expensive way than heretofore (in the case of U.S.A. cotton belt due to boll-weevil, etc.).

The world must have cotton at a reasonable economic price and if U.S.A. can no longer supply the bulk as in the past, the world's cotton industry will get it somewhere else. It has been obvious in latter years, and in a marked degree during 1922-23, that the great consuming markets of cotton goods, viz., India, China, Turkey and Central Europe, have not the purchasing power to obtain goods manufactured on a basis of current values for raw cotton which were brought about, to a large extent, by the inability of U.S.A. to produce cotton commensurate with the price ruling for the agricultural products in such countries. To increase the purchasing power of these nations up to a level that would enable them to buy their normal requirements of goods, manufactured from cotton costing at the plantation 25 to 27 cents, is an utter impossibility. Consequently many mills will unfortunately have to continue some short time, probably until the non-American suppliers grow considerably more cotton than at present, for we do not see any hope of getting from U.S.A. in the near future a large crop at a reasonable economic price ; during the current season she has made almost a superhuman effort to produce a record crop and the result is most disappointing.

The one consolation for the consumer of cotton is that the high level of prices in U.S.A. will stimulate other countries more than any propaganda work to a rapid extension of cotton growing.

MANCHESTER, ARTHUR FOSTER. ARNO S. PEARSE.  
*September, 3, 1923.*

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## II.—The Cotton Growers' Co-operative Movement in U.S.A.

The losses sustained by the growers in many of the local cotton markets, due to their lack of knowledge and to the inability of competition between local buyers to establish correct values, led to the inauguration of the movement. " Bulletin 36 and 457 " and " Extension Circular 92," College of Agricultural University, Arkansas, show the extent to which the farmer has been prejudiced by existing sale methods ; in the course of this investigation by Government officials it is stated that " the prices of cotton of the same grade and staple vary as much as \$10 and more per bale, and still more important, the better grades and longer staples are bought at from \$35 to \$50 below their market values." One glaring example came to our notice : A banker at Little Rock stated that he had investigated thoroughly a case where a farmer had 6 cents offered for his cotton in the local market and could not get a higher bid, therefore he came to his bank begging for a prolongation of the due date of his bill as he thought the cotton ought to have paid his full debt. The banker

interested himself personally and sent the farmer with a note to a merchant who at once paid 14 cents, and after several days the banker and merchant met and the latter confessed that he sold this very cotton for 32 cents. This was one of the causes which had determined the banker to throw his whole energy on the side of the Co-operative movement.

In short, the farmer generally is not a salesman and does not understand the quality and grade of the cotton he has raised and this factor is responsible for the establishment of the Cotton Growers' Co-operative Associations, of which there are now 13 in existence in the American cotton belt. They have been working two complete years, during the first of which, 1921-22, only 354,000 bales were sold by these Societies, in 1922-23 this figure reached 800,000 bales; every prospect exists for a speedy development and it is hoped that in the present season these organizations will handle at least 1,500,000 bales. Care will have to be taken that the extension does not become too rapid, as otherwise the administration may not be able to cope satisfactorily with the large business.

The Department of Agriculture has interested itself very much in promoting the organization of the Co-operative Societies on a sound basis. The first step was to obtain legislation enabling the farmers to combine, and the passage of the Warehouse Act, the revival of the War Finance Corporation and the direction of its attention to the resuscitation of agriculture, and, finally, the passage of the Capper-Volstead Act, exempting agricultural organizations from the Sherman Anti-Trust Law, have been very important factors in making possible the Co-operative movement in its present proportions.

The farmers who become members of a co-operative organization sign a legal contract under which they agree to hand over for a period of five or seven years all their cotton for sale through the Society. Though the contract has been approved by the Courts, it is doubtful whether a wholesale enforcement of the same would be possible. The Co-operative Societies have no capital at their inception, but receive advances from the banks on the cotton. On delivery of the cotton to a first-class warehouse the farmer receives from the Society an advance of 60 per cent. of the value of the cotton, 1 to 3 per cent. of the gross value is retained by the Societies for the formation of a reserve fund, and when the cotton is actually sold the farmer receives the balance. The main advantages as regards the farmers as a class are that they receive an average price for the whole season's cotton, and that if a grower raises one single bale of a cotton superior to the rest he will receive an adequate price for the same, whilst formerly any small quantity of better grade or staple cotton had to be sold together with the bulk. The Society does not own warehouses, but uses any public warehouse of good construction, and as soon as the cotton arrives there, samples are sent to the head offices where each bale is carefully classed by expert graders in the employment of the Societies. All the classing of cotton from one State is therefore done in the same room, under equal conditions. The organizations have been careful to engage the very best graders they could obtain from existing well-reputed exporters; there are men amongst these who have specialized knowledge of the Liverpool, Havre and Bremen markets, and we have learned from private conversation with these graders and convinced ourselves that the grading is done most carefully, in fact, the instructions to the classer are to state the grade of the cotton half a grade lower than that which it represents actually. The work of these graders is to collect lots of identical

cotton and make what is called a "pool." A careful system of book-keeping is used in each office by means of which the owner, and all other particulars relating to each bale, may be traced, and once the whole "pool" is sold, the farmer receives the balance of the full average price due to him on his lot.

The Societies are not allowed to hold cotton back for the purpose of obtaining higher prices, but they are obliged to sell *some* cotton every month, regardless of price, though it will only be natural that when prices rule low they will not put large quantities on the market. In this way the farmer will obtain more or less the average price ruling throughout the year, whilst formerly, as we know from experience, most farmers have rushed all their cotton on the market immediately it had been ginned. It is anticipated that the monthly sales of the Co-operative Societies will finally lead to a stabilization of the price of cotton. There is no fixed quantity of cotton which has to be sold every month.

The great advantage to the spinner is that the Societies are not allowed to offer cotton except that which they have actually in their warehouse. They cannot go into the open market to fill an order. They sell on actual samples, i.e., bales in warehouse, and on types made up in each season.

Another advantage has already been clearly shown through the practical non-existence of country-damage as regards bales handled by the Societies, because the banks will not make any advance unless the bales are immediately brought into first-class warehouses.

The Societies have to satisfy the banker, the grower and the buyer. Their organization for obtaining large quantities of cotton is complete, but what they now have to do is to win the confidence of the buyer and build up further the necessary organization for the disposal of the cotton. Members of the Federation may be quite sure that in dealing with these Co-operative Associations they will receive their cotton quite as well graded, if not better, than through the usual channels, and as regards price, each spinner will be able to judge whether he can buy cheaper from his former supplier or from the new Associations. We have convinced ourselves that the men at the head of the organization are straightforward, anxious to come into touch with the spinner direct, and to satisfy him in every respect.

With a view to being able to submit to the members a history of the manner in which these Associations attended in the past to their orders, we obtained from some of them the following statements of the claims which they had received during the last year :

*Georgia Cotton Growers' Co-operative Association, Atlanta, Georgia.*

Number of bales sold by Association .. .. .. ..	55,000
Number of bales rejected .. .. .. ..	490
Number of arbitrations .. .. .. ..	5
Number of bales involved in arbitration .. .. .. ..	1,183
Number of arbitrations Association won .. .. .. ..	3
Number of arbitrations Association lost .. .. .. ..	2
Number of bales rejected in all adverse decisions of Arbitration Board .. .. .. ..	287

*Arkansas Cotton Growers' Co-operative Association, Little Rock.*

"During the season 1922-23, 11 export shipments aggregating 2,100 bales were made. The cotton was billed on the usual export basis, and no short weight claim was received, but on the contrary a credit note was given for the difference in weight billed as compared with the weight at destination. The cotton was promptly accepted at destination and no complaints as to the grade."

*Oklahoma Cotton Growers' Association, Oklahoma.*

"The Oklahoma Cotton Growers' Association in their first season, in 1921, handled 91,311 bales in pools, which were sold to 97 different firms without one claim. Quite a good deal of this cotton was sold on description and every bale was delivered when due. There were, therefore, no delayed deliveries.

"The Oklahoma Cotton Growers' Association in their second season, in 1922, handled 65,868 bales in pools, which were sold to 57 different firms. The only loss in weight and tare claim we received during our 1922 season was on 500 bales and amounted to \$314.60 for both claims.

"We had 200 bales of cotton rejected due to being tied up in a strike in the railroad yards in Chicago for 90 days, during which time the market and the basis declined about 300 points, and it is a matter of record that to satisfy the buyer we replaced the cotton with a full grade and a full staple better than he bought.

"One other claim we paid a mutual allowance on 100 bales due to a declining basis, whereas the buyer claimed the cotton was not up to description. All three of the above claims were handled through Boston, Mass."

The following are the names of the various Co-operative Cotton Growers' Associations :

North Carolina Cotton Co-operative Association, Raleigh, N.C.

South Carolina Cotton Co-operative Association, Columbia, S.C. \*

Georgia Cotton Growers' Association, Atlanta, Georgia.

Mississippi Farm Bureau Cotton Association, Jackson, Miss.

Alabama Farm Bureau Cotton Growers' Co-operative Association, Montgomery, Alabama.

Tennessee Cotton Growers' Co-operative Association, Memphis, Tenn.

Oklahoma Cotton Growers' Co-operative Association, Oklahoma City.

Arkansas Cotton Growers' Co-operative Association, Little Rock.

Texas Farm Bureau Cotton Growers' Co-operative Association, Dallas, Texas.

Pima Cotton Growers' Association, Phoenix, Arizona.

The Missouri and the Tennessee Cotton Growers' Co-operative Associations sell their cotton through the Little Rock Association.

The above Associations are combined in a selling organization called  
The American Cotton Growers' Exchange,

whose selling offices are at Atlanta, Georgia, and the Administration Offices at Dallas, Texas. Mr. C. B. Howard, well known amongst cotton buyers in Europe is at the head of the Selling Department in Atlanta, and Mr. Carl Williams, the President, has his office at Oklahoma City. The European agents of the American Cotton Growers' Exchange are as follows :

Liverpool ..	G. T. Howard, Jr., 19, Oldhall Street.
Havre ..	Henri du Chayla, 9, Place Jules Ferry.
Bremen ..	II. R. Robertson, Langenstrasse 133.
Rotterdam ..	I. J. Kalmon.
Copenhagen ..	Baltic Cotton Co.
Barcelona ..	Riva & Garcia.

"The Staple Cotton Co-operative Association, Greenwood, Miss.," does not form part of the American Cotton Growers' Exchange and sells direct; as its name indicates it sells only staple cottons.

Whilst the very large exporters of cotton are not inimical to the Co-operative movement, we found a great deal of opposition and criticism amongst the smaller firms, who naturally view the extension of the organization with alarm. A great deal of criticism is levied against the Societies' alleged high expenses of administration, transport, etc. Exaggerated statements to this effect have been made, as we were able to convince ourselves. It is, of course, natural that in the early stages of their existence, the work being on a small scale, the expense per bale was somewhat heavy. After all, it does not matter to the spinner what the expenses of administration are as long as he gets his cotton at a low price, well graded, and full weights.

Time alone will show whether these organizations are fulfilling a real want. If they do, they will survive. Since the Co-operative Societies commenced operating, the market has been favourable, as prices at the beginning of the season were low and gradually rose, and this season again it looks as if a similar trend of prices will favour the organizations. It is somewhat doubtful as to what will happen when prices at the beginning of the season are high and fall off later on, as farmers are not likely to agree that under those conditions the average price of the season is a fair price to them.

We recognize in the establishment of these Associations an organization with whom the cotton spinners are able to deal, and through whose intermediary very valuable reforms may be carried out. All such questions as improved baling, ginning, seed selection, confining one variety of cotton to one district, stabilizing the price of cotton, etc., are of mutual interest to grower and spinner. Such machinery has been wanting so far, and we feel confident that the Co-operative Societies through a closer touch with the consumer will exercise their influence in many directions towards an improvement in the quality of the cotton and a cheapening of the cost of the production.

ARTHUR FOSTER. ARNO S. PEARSE.

### III.- U.S.A. Cotton Condition and Acreage Reports.

*An outline of the organisation and of the methods used by the Cotton Crop Reporting Board of the Department of Agriculture, Washington, D.C., in its condition and acreage reports.*

After several protracted interviews with the heads of the above Board, we came to the conclusion that these reports are very thoroughly prepared and show, as far as it is humanly possible, the result of an analysis of the opinions as to the state of the crop on a given date of many thousand people. The Board does not actually forecast the crop, but it reduces the opinions of many on a figure-basis after having taken into consideration the effect of idiosyncrasies of the vast army of farmers and other reporters in accordance with the experience gained from investigation during many years. We have reason to believe that the "statistical bias," or rather the psychological error of the individual farmers making returns to the various questionnaires, has varied from 5 to 20 per cent., and that the average works out to about 12 per cent., always under-estimating to that extent the acreage.

We have found in our intercourse with the spinners of the world that there are very few indeed who may claim to have a thorough understanding of the methods used by the Department of Agriculture in compiling these reports, and the lack of confidence shown in the figures must be attributed largely to the fact that no authoritative detailed explanation has been published so far.

The following statement is the outcome of our close investigation at the Department, which we submit in the hope that it will lead to a readier understanding of these important figures and thus benefit the individual members of the Federation.

#### A.—The PERSONNEL OF THE CROP REPORTING DIVISION consists of :

- I. Crop Reporting Board.
  - (a) Director of Marketing Research of Bureau of Agricultural Economics.
  - (b) Statistician in charge of Division.
  - (c) Three other statisticians.
  - (d) Two agricultural statisticians (called in from the field).
- II. General Office, Washington.
  - (a) Seven statisticians.
  - (b) 100 assistants, computers, etc.
  - (c) Reporters to Washington Office on cotton.
    1. County cotton reporters (over 700), one farmer in each cotton county, who has several assistants reporting to him for their portion of the county.
    2. Township cotton reporters (about 7,000), from 5 to 15 or more farmers in each cotton county, each reporting for the territory with which he is personally familiar.

*INTERNATIONAL COTTON BULLETIN*

- 3. Special cotton reporters (about 5,000), dealers, factors, bankers, merchants, large growers and others interested in cotton in a larger way.
- 4. Individual farm cotton reporters (about 8,000), similar to township cotton list, but more extensive and reporting for their own farms only.
- 5. Ginners' list (20,000), a representative group of cotton gin operators.

**III. Field Service.**

- (a) Agricultural statisticians. One full-time employee of the Bureau in each State, with fully equipped office, usually at the State Capitol, maintaining close contact with well-informed persons in the State, making special studies of acreage, etc., for his State, and devoting about one-half of his time to travel in and throughout the State.
  - 1. Field aids (cotton reporters) (about 8,000), similar to township cotton list without duplication, who report to agricultural statisticians.
  - 2. Special cotton aids (5,000) similar to the Bureau's special cotton list.
  - 3. Individual farm cotton assistants (about 25,000).

A perusal of the above shows the enormous number of individuals consulted and their diversified occupations.

**B. ACREAGE ESTIMATES (FINAL).**

- I. Decennial enumeration by Bureau of the Census serves as acreage basis.
- II. Annual enumeration of pounds of cotton ginned made by Bureau of the Census divided by final estimate of yield per acre gives the revised harvested acreage estimate for each year.
- III. Revised acreage in cultivation on June 25 secured by adding abandonment to the revised harvested acreage. The abandonment reports of the Department refer to abandonment of cotton acreage which was growing (in cultivation) on June 25 and subsequently abandoned. *Note.—The Department makes no estimate of the acreage planted in the spring and abandoned prior to June 25. It defers its estimate of acreage until the early abandonments and replantings are finished.*
- IV. Preliminary estimate of acreage in cultivation on June 25 each year, based upon percentage of change from revised acreage in cultivation on June 25 of previous year.
  - (a) Methods used in estimating this percentage of change.
    - i. Acreage compared to last inquiry (last year equals 100), sent to both Washington and field lists. It tends to be below 100 always and relatively little dependence is now placed in it.

2. Acreage compared to usual acreage (usual year 100), sent to both Washington and field lists. Compared to similar inquiry in previous year, e.g.,  $\frac{96}{92} = 104 \frac{92}{96} = 96$  (called ratio relative method). Useful where agricultural practices are well established and rather stable in the case of abrupt changes. Method of use overcomes the statistical handicap of tending always to fall below 100.
3. Acres per 100. Sent to field aids. Main crops only included. Comparison made with previous year's report (ratio relative), e.g.,  $\frac{44.0}{40.0}$  acres = 110 per cent.
4. Sample data on individual farm, two-year comparison. Acres on reporters' farm this year and last year. June 25 (cotton only) sent to township, county, special and individual farm cotton reporters.  
Example  $\frac{44,000}{40,000}$  acres = 110 per cent. (called two-year direct comparison). Records on over 2 per cent. of acreage since 1914. Comparison of year-to-year percentages of change with final percentages of change of estimates for past years gives measure of divergence of changes of these sample farms from changes for all farms.
5. Acreage count (made by agricultural statistician). Count of actual fields or telephone poles opposite actual fields over representative portions of the State.  
Direct comparison. Example  $\frac{88.0}{80.0}$  fields = 110 per cent.  
Two-year ratio relative. Example  $\frac{44.0}{40.0}$  per cent. all fields = 110 per cent.
6. Fertilizer tag sales record (from State Departments of Agriculture). Per cent. of change as modified by change in amount per acre, and change in percentage of cotton fields receiving fertilizer.
7. Acres per plough (in old cotton belt means one negro labourer, one mule and one plough). Used as in 3 and as in 4.
8. Complementary crop (corn versus cotton). If one increases the other must decrease. Used as in 3 and as in 4.

#### V. Preliminary estimate of acreage harvested (December).

- (a) Method used in estimating preliminary acreage harvested.
  1. Percentage of change from harvested acreage of previous year as in IV 1.
  2. As in IV 2.
  3. As in IV 3.
  4. Sample data or individual farm two-year comparison. September 15 (about all crops sent to county, township, special and individual farm cotton reporters and in addition to about 12,000 of the general crop list and to field aids individual farm and special cotton aids). These returns refer to harvested acreage.

Direct comparison as in IV 4.

Example  $\frac{44,000 \text{ acres}}{40,000 \text{ acres}} = 110 \text{ per cent.}$

Two-year ratio relative.

Example  $\frac{(1922-44\cdot0 \text{ per cent. all crop}}{(1921-40\cdot0 \text{ per cent. all crop}} = 110 \text{ per cent.}$

5. As in IV 5.
6. As in IV 6 (record for entire season).
7. As in IV 7.
8. As in IV 8.
9. Per cent. of cotton in cultivation June 25, subsequently abandoned county and township reporters and to field aids.
10. Census report of ginning to December, combined with ginners' estimates of percentage of the crop ginned to date correlated with actual ginning to December 1 over a period of years. Resultant production divided by yield per acre to give acreage harvested.

#### C. HARVESTED YIELD PER ACRE.

In December enquiry is sent to county, township, special cotton, and individual farm reporters and to field special cotton and individual farm aids. Individual farm reporters and aids report for their own farms. Others report for their locality. Comparative agreement of reports from various lists indicates reliability particularly of year-to-year relations.

#### D. CONDITION.

Monthly enquiry to county and township reporters and field aids asks for condition of crop in per cent. of a normal condition of growth and vitality for that date. The reporter is expected to take into account all factors known to him at the time which may affect the final yield per acre. The normal crop is practically synonymous with a full crop, such as a farmer expects to realize in an average favourable year in which the crop starts out under favourable circumstances as to seed, seed bed, moisture conditions, and is not thereafter adversely affected by unfavourable weather, plant disease or insect damage. The normal crop is therefore more than an average but less than a "bumper" crop. A condition at any date which, with favourable influences to harvest, promises a normal or full crop is a normal or 100 per cent. condition. While hard to define, the close agreement between the reports of independent lists of farmers indicates that the mass judgment of farmers as to the meaning of normal crop is very stable and comparable one year with another.

#### E. INDICATED YIELD PER ACRE.

Condition expressed as percentage of normal multiplied by the established par or 100 per cent. equivalent yield per acre for *that* month and *that* year. Assumes average influences upon the crop until harvest. If influences are above average, final yield is higher and vice versa.

## F. PAR OR 100 PER CENT. EQUIVALENT.

The quantitative expression of the normal as derived from the relation of past conditions to past yields. Illustration :

	Final Yield	CONDITION					EQUIVALENT OR 100%				
		May 25	June 25	July 25	Aug. 25	Sept. 25	May 25	June 25	July 25	Aug. 25	Sept. 25
	pounds	%	%	%	%	%	pounds	pounds	pounds	pounds	pounds
1907...	205	80	72	75	78	78	256	285	273	268	270
1908...	213	87	89	89	80	69	245	239	289	266	309

It will be noted that for *any one month in any one year*, the 100 per cent. equivalent is to the final yields for that year as 100 is to the reported condition for that month for that year. In establishing the pars for each month of the current year (1923) the 5 and 10 year moving averages of 100 per cent. equivalent, the median 100 per cent. equivalent, the 100 per cent. equivalent in the individual past years are all considered to the end that the established par may represent the yield which would result should influences upon the crop be average until harvest.

The following table of par yield of cotton per acre was published by the Department for 1923 :

**PAR YIELD OF COTTON PER ACRE INDICATED BY 100 PER CENT. CONDITION EACH MONTH BASED UPON A STUDY OF THE RELATION OF CONDITION TO YIELD IN FORMER YEARS**

1923. (Tentative—subject to change without notice.)

State	(May 25) June	(June 25) July	(July 25) August	(Aug. 25) Sept.	(Sept. 25) October
Virginia	280	290	300	310	335
North Carolina	300	300	315	350	385
South Carolina	240	240	250	290	345
Georgia	185	190	200	240	275
Florida	125	125	140	155	180
Alabama	185	190	200	230	255
Mississippi	215	213	222	233	290
Louisiana	195	195	210	248	275
Texas	190	182	195	230	258
Arkansas	235	225	230	263	293
Tennessee	245	240	240	260	290
Missouri	330	330	335	350	375
Oklahoma	200	195	200	243	275
California	300	290	290	300	320
Arizona	330	330	330	330	380

The Crop Reporting Board does not use a U.S. par. To obtain such a par the State figures should be weighted by the State acreages. As the Crop Reporting Board does not estimate acreage until July it makes no quantitative estimate of production until then.

## G. FORECAST PRODUCTION.

Preliminary acreage (in cultivation June 25) multiplied by the indicated yield, in lbs. of lint per acre, and reduced to equivalent 500 gross weight bales.

MANCHESTER,  
*September 3, 1923.*

ARTHUR FOSTER. ARNO S. PEARSE.

## IV.—Delta and Pine Land Company of Mississippi, Scott, Miss.

Our visit to this, the largest cotton plantation in the world, proved extremely interesting and instructive, as we were fortunate in being present during the two days of judging at the annual inspection of the different units of the 15,500 acres which are planted with cotton. We drove some 150 miles over the estate in which the Fine Cotton Spinners' & Doublers' Association, Ltd., Manchester, England, have a preponderating interest. We were told in Washington by the heads of various sections of the Department of Agriculture that this is the best organized and managed plantation in the whole of the American cotton belt, and all along our journey from North Carolina southward we heard frequently laudatory references to Scott, and particularly to its very capable General Manager, Mr. J. W. Fox. Some of the members of the International Cotton Federation



Salsbury Cotton on Delta and Pine Land Co. of Mississippi.  
*Photograph taken 20th July, 1923.*

made the personal acquaintance of Mr. Fox on the occasion of the International Cotton Congress at Brussels in 1910, when in the course of an address he stated that for a long time spinners would not be able to buy their cotton at 15 cents, owing to the threatening boll-weevil danger. Mr. Fox's ideas as to price are now that the Mississippi farmer ought to have 30 cents for short staple and 35 cents for 1½ in. cotton.

After our minute inspection of the Scott plantation, we have no hesitation in stating that nowhere on our long journey did we see any other large compact area which was so well cultivated and where the plants were so much advanced as at Scott. If it were not for the certain boll-weevil damage that is now developing, there would be a crop at Scott of

almost a bale to the acre. Practically all the cotton is the "Salsbury" variety, a type of Cleveland big boll and Express (originated by Mr. E. C. Ewing, the cotton breeder of the plantation), which through constant selection has reached full 1 $\frac{1}{2}$  in. staple. The trees have as perfect a shape as one may wish to see, with fruit-bearing laterals right from the bottom. The cotton is grown closer together on the rows than in most places; it was stated that this method of close planting had proved to give a larger yield than the more open one.

The plantation was acquired by the Fine Spinners in 1911. Its total area is 38,000 acres, of which 22,345 are under cultivation and 15,500 under cotton. The estate is divided into 18 units of roughly 1,500 acres each, over each of which is placed a thoroughly practical cotton farmer as manager. These managers take their orders from headquarters, Mr. J. W. Fox is General Manager, and his assistant Mr. B. J. Young.

The boll-weevil started, unfortunately, the same year that the plantation was taken over by the Fine Spinners, and short staple cotton had to be grown for that reason. In 1911 there were between 10,000 and 12,000 acres under cotton, yielding 2,800 bales, and the following is a record of the last seven years:

1917	..	..	..	yield per acre, 307 lbs. lint		
1918	..	..	..	15,000 acres, 390 lbs. lint per acre (two units made over a bale per acre).	Variety	Cleveland
1919	..	..	..	14,500 acres, 280 lbs. lint per acre.	Warrnamaker,	
1920	..	..	..	14,500 " 250 " "	?	in.
1921	..	..	..	13,000 " 246 " "		

In the same year the "Salsbury" cotton was tried with good results in one unit, and the following two years the whole acreage was planted with this cotton.

1922	..	..	..	13,700 acres, yield 270 lbs. lint per acre.		
1923	..	..	..	13,500 acres, yield probably 250/270 lbs. lint per acre.		

1913 and 1914 were the worst boll-weevil years on the plantation. The extreme cold weather of 1917 and 1918 reduced the pest, and in 1918 the poisoning of the fields with calcium arsenate by means of five machines was begun, and at the present time there are working on the estate practically every night 70 traction machines and 40 saddle machines. All the traction machines have three spouts covering four rows of cotton with calcium dust. There is no other plantation at which poisoning is carried out as systematically as at Scott, and new machines are being developed with a view to handling larger quantities at one time. It must be borne in mind that whenever a shower of rain falls the fields have to be dusted afresh, and during the last few months showers have been very frequent, almost daily. The cost of poisoning throughout the weevil season is estimated to be about \$4 per acre, plus expenses for the mules. The calcium arsenate has proved equally effective for the killing of army-worms and other insects.

The Company uses a large quantity of nitrate of soda with a view to hastening the crop to maturity before the arrival of the overwhelming mass of the weevil. 150 to 200 lbs. per acre of nitrate of soda are applied each year according to the quality of soil. The cost of fertilizers and necessary labour is assessed at \$4.50 per acre. The fertilizing machine hoes the soil at the same time as it deposits the manure.

The tenant share system is in vogue throughout the plantation; the Company provides the implements, mules, seed, houses, water and wood,



Horse Traction Machines Dusting Cotton with Calcium Arsenate.



One of the Saddle Machines Dusting Cotton with Calcium Arsenate.

half the fertilizer and half the calcium, half the ginning and baling costs. The tenant receives one-half of the proceeds of the crop. For any land which the tenant may cultivate with maize he pays an annual rent of \$13 per acre; roughly half an acre is given free to each tenant for his garden.



Aerial view of Dusting Plane operating over Cotton Fields showing how the Dust is sprayed among the plants. This method is still in the experimental stage

In a few cases the tenants provide all the implements, mules, etc., in which case they receive three-quarters of the proceeds and the Company one-quarter.

The estate has about 1,200 families of negroes, each in a decent wooden house, 17 churches, used also for schools during five months (five hours per day), four general stores and five commissaries. There are two doctors, a hospital, for which 50 cents per acre are debited to each tenant, but when the doctor is called to a house, which may be miles away from headquarters, the doctor is allowed to make a charge.

Day work is paid for by the Company at \$1.25 per day from sunrise to sunset, but for night work, i.e., dusting with calcium arsenite, \$2.00 are paid.

The Company owns also a saw mill, which cuts daily 30,000 ft. of timber.



Loading Cotton at Scott Station

The tenants at the end of 1922 drew as their balance on the crop, after paying all debts in the store, etc., between \$15 and \$20 per acre, and when one considers that a man and wife look after 14 or 15 acres that saving is quite a substantial sum and very different from most other plantations. In consequence the Company has little difficulty in keeping the negro labour on the estate, but nevertheless there are some cases where a few families have left at almost a moment's notice in spite of a promising crop. When the negro gets the "wanderlust" no amount of argument will hold him back.

The Company has 12 gins, each 80 sows, and turns out 180 bales of 500 lbs. in 24 hours, working day and night. Eighty-four men are engaged in this factory receiving from \$2 to \$3 per 12 hours last year, but little labour will be available at these prices during the present season.

We were present at the meeting of the Farm Managers of the different units, when they judged the fields and were much impressed with the business-like manner and the interest shown by them in their work. The Delta & Pine Land Company of Mississippi is indeed a model plantation, of which the Fine Spinners may be justly proud; it exercises a great beneficial influence throughout the State, as farmers everywhere copy the methods adopted at Scott.

MANCHESTER, ARTHUR FOSTER. ARNO S. PEARSE.  
September 3, 1923.

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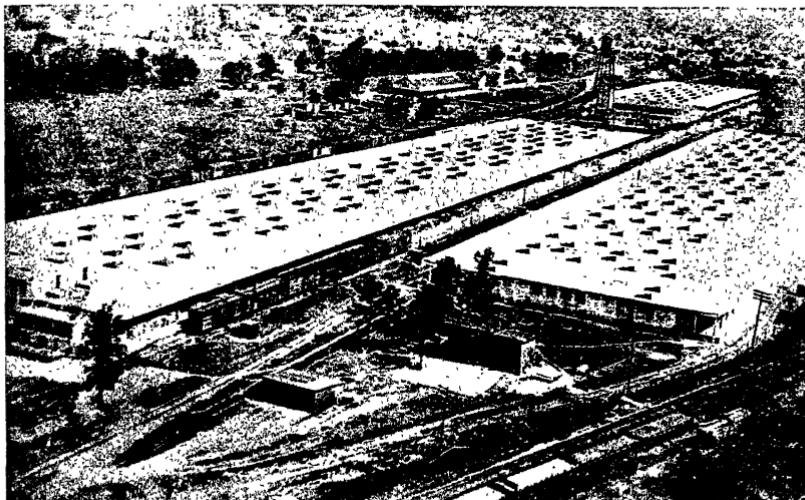
## V.—Modern Cotton Warehouse System and Fire Insurance.

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The accompanying photographs show the construction of one of the cotton warehouses recently constructed at Houston, Texas. The Houston Compress Company owns two similar plants; one consists of three units each equivalent to 1,050 ft. long and 200 ft. wide, totalling a storage capacity of 100,000 bales of high density cotton. The cotton is stored in single tiers. The second plant, situated at the Houston-Galveston Ship Canal, is just being completed, is 1,710 ft. long and 240 ft. wide, including the concrete wharf which can accommodate four steamers at one time. The storage capacity is 75,000 bales of high density cotton. The contract for this building was given out on March 11, 1923, and in August the warehouse was complete. The construction of both warehouses is concrete throughout.

The Official Bureau of the State of Texas has just granted an insurance rate applying to both of these plants of 5 cents per \$100.00 per year on the buildings, and 8 cents per \$100.00 per year on cotton stored in same. This is probably the cheapest insurance rate in the world, and it has been made possible by the installation of automatic fire extinguishers throughout all buildings together with an automatic electrical apparatus which performs the following functions : night-watchmen patrol all buildings throughout every night and turn their keys in boxes located at frequent spacings which automatically register in the central office of the Western Union Telegraph Company in Houston. If any watchman fails to register every 30 minutes at the proper station an investigation is immediately made by the Western Union supervisors. If they cannot get in communication

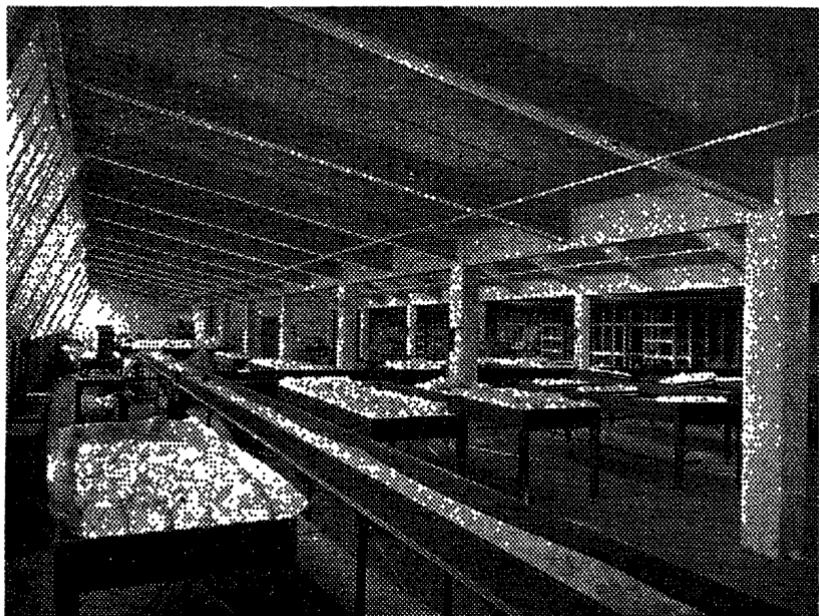
with the watchman by telephone they send messengers down to investigate the trouble. This additional supervisory system, now being installed and on which the reduction in insurance rate has been granted, connects by electricity all the automatic sprinklers in all the buildings and all of the water storage tanks on the property with the central office of the



One of the Plants of the Houston Compress Company



This photograph illustrates the Mono-rail system. The trolleys are on ball-bearing rollers, running on a continuous steel track. A continuous steel cable, constantly moving, driven by electric motors, is gripped by automatic clutch on the trolleys, and keeps them moving until they are stopped or started by throwing a lever, at any point desired.



Classing Room at the Houston Compress Company.

Western Union Telegraph Company. If the level of water in any tank falls below the required point, or if the pressure in the automatic sprinkler pipes falls below normal, an alarm is sounded in the Western Union office and an investigation is made at once. Likewise, if a fire occurs and one of the automatic sprinklers opens up it sounds an alarm in the Western Union office and they notify the fire department of the city.

In the two properties are four high density compresses, each with a capacity of 2,000 bales each 2½ hours.

Cotton is handled from one place to another in the plants by an electrically-driven mono-rail system. Loading into the cars is done by an electric car loader.

The classing is done in scientifically equipped rooms. The samples move before the classers on belt conveyors, where the grade and staple is determined, and afterwards laid out on inspection tables for final inspection by the head classer.

The cotton is weighed on automatic scales, the truck and bale are placed upon the scales, which are adjusted to deduct the uniform weight of the trucks.

Cotton arriving at these plants is inspected by experts who repair any country-damage before the cotton is pressed.

ARTHUR FOSTER. ARNO S. PEARSE.

MANCHESTER,

*September 3, 1923.*



## Reports from Affiliated Spinners' and Manufacturers' Associations.

### BELGIUM.

#### RATES OF EXCHANGE.

The considerable rise in the rates of foreign exchanges is the outstanding fact of the last quarter. At the time of our last report the pound sterling was in the neighbourhood of 80 francs, and the dollar at 17·50. The pound has now risen to above 100 francs and the dollar maintains itself at about 22 francs.

#### WAGES.

This rise in the exchange has had its repercussion on our industry. A further increase in wages of 5 per cent. as from 15th July last has been granted; this brings the increase in wages granted since March to 10 per cent.

#### DEMAND.

The depreciation of our money has had the effect to stimulate vigorously the sale of cloth for export. Unfortunately, orders are generally for immediate delivery, but the 8-hour law, which is strictly observed by us, stands in the way of fulfilling many orders. The sale of cloth for home consumption, on the other hand, is of little importance, prices in Belgian currency being too high.

#### SALES AND STOCKS.

The sales of yarns are normal as regards quantities, but, as is the case of cloth, purchases are made for prompt delivery only. The entries in our order books stand at a very low figure at present, as the weavers have taken delivery of their former orders at prices often much below the prices of the day. The stocks of yarns are almost nil, and have fallen to the lowest figure registered since restarting of the spinning mills. Sales of yarns leave a limited margin of profit, but are often effected at cost price only.

#### OUTLOOK.

The characteristic note of the last quarter is the insecure state of affairs consequent upon the vicious fluctuations in the rates of exchange. They vary from day to day, and even from hour to hour, and often to a very sensible degree. The depreciation of our money is mainly due to political causes and we may experience sudden changes.

### BELGIQUE.

*The following is the original article.*

#### TAUX D'ÉCHANGE.

Le fait saillant du trimestre écoulé est la hausse considérable des devises étrangères. Lors de notre dernier rapport la livre sterling était

aux environs de 80 francs et le dollar à 17·50. Actuellement la livre a dépassé 100 francs et le dollar se tient aux environs de 22 francs.

#### SALAIRS.

Cette hausse des changes a eu sa répercussion sur notre industrie. A dater du 15 juillet une nouvelle majoration de 5 pour cent a été accordée sur les salaires, portant ainsi à 10 pour cent la hausse consentie sur les salaires depuis le mois de mars.

#### DEMANDE.

La baisse de notre monnaie a eu pour effet de stimuler fortement la demande en tissus pour l'exportation. Malheureusement les ordres remis sont généralement pour livraison immédiate et la loi des 8-heures observée strictement chez nous, empêche de faire face à bien des demandes. La vente de tissu pour le consommateur belge est, par contre, peu importante, les prix en monnaie belge étant trop élevés.

#### VENTES ET STOCKS.

Les ventes en filés de coton sont normales comme quantités mais, comme pour les tissus, les achats sont faits pour livraison rapide. Notre carnet d'ordres se trouve actuellement réduit à un chiffre peu important, les tisseurs ayant pris livraison de leurs ordres passés à des prix souvent sensiblement inférieurs aux prix du jour. Les stocks en filés de coton sont quasi nuls et sont tombés aux chiffres les plus bas enregistrés depuis la remise en marche des filatures. La vente des filés laisse une marge de bénéfice limitée et est souvent consentie au prix coûtant.

#### PERSPECTIVE.

La note caractéristique du dernier trimestre est l'insécurité dans les affaires à la suite des fluctuations importantes des changes. Ceux-ci varient de jour en jour et même d'heure en heure dans des proportions souvent fort sensibles. La dépréciation de notre monnaie qui est due principalement à des causes politiques peut connaître de brusques revirements.

## CZECHO-SLOVAKIA.

#### WAGES.

Weaving wages have not undergone any change since our last report published on page 294, BULLETIN N°. 3.

Below we give a table showing the increase in wages which have taken place since 1914 :

Date.		per hour	Increase or Decrease
1st July, 1914 ..	.. (10 hours a day)	K 0·32	-
1st July, 1915 ..	.. " "	" 0·32	-
1st July, 1916 ..	.. " "	" 0·32	-
1st July, 1917 ..	.. " "	" 0·32	-
1st July, 1918 ..	.. " "	" 0·32	-
1st December, 1918 ..	.. " "	0·60	+ 87½ per cent.
1st December, 1919 ..	(8 hours a day)	K 1·25	+108 "
1st April, 1920 ..	" " "	" 1·75	+ 40 "
1st August, 1920 ..	" " "	" 2·90	+ 65·6 "
1st November, 1920 ..	" " "	" 3·30	+ 13·8 "
1st October, 1922 ..	" " "	" 3·04	- 7·0 "
1st November, 1922 ..	" " "	" 3·04	-
1st May, 1923 ..	" " "	" 3·04	-

### HOURS OF WORK.

Regarding the working time, the 48-hour week is strictly adhered to in the textile industry, excepting several special branches which are producing seasonable articles where, at times, it is necessary to work overtime, in order to keep contracts.

At the present time the cotton industry is only partly employed. Mills are not working for stocks as there is a great uncertainty as to the trend of raw cotton prices.

The export trade is suffering seriously on account of the prevailing circumstances ; our clients in the different countries are unable to pay their outstanding debts and, consequently, they are limiting their imports. In spite of an agreement arrived at between Czecho-Slovakia and Hungary regarding outstanding claims of Czecho-Slovakian exporters, Hungary is not fulfilling the terms of the agreement. Under such circumstances, our manufacturers are not in a position to run the risk of undertaking export trade without sufficient guarantees. The future of the Czechoslovakian textile industry is closely dependent on the stability of economic conditions in the countries to which our products are being exported and especially on the rates of exchange obtaining in these countries.

The following is a statement of the import and export trade during the first five months of this year :

#### IMPORTS IN KG.

	January	February	March	April	May
Raw Cotton .. .	2,263,574	3,827,216	6,007,683	7,394,356	4,689,453
Cotton Yarns .. .	70,736	62,104	79,277	91,353	67,687
Cotton Cloth raw .. .	3,001	7,369	7,874	11,884	8,506
Other Cotton Cloth and Cotton Goods .. .	18,783	31,564	26,693	45,808	48,312

#### EXPORTS IN KG.

	January	February	March	April	May
Raw Cotton .. .	315,177	301,195	319,121	381,097	160,957
Cotton Yarns .. .	1,261,869	999,114	1,216,115	1,083,338	883,402
Cotton Cloth raw .. .	335,012	286,503	311,778	360,405	470,846
Other Cotton Cloth and Cotton Goods .. .	1,080,592	1,005,355	1,412,979	1,863,327	1,273,691

### DENMARK.

#### WAGES.

In accordance with the advance of the index-price, which has taken place since February this year, all wages have been increased by 3 per cent from August. Owing to this advance of the prices it has not been possible to induce the workers to accept a prolongation of the agreement, which consequently expires on the 1st of February, 1924.

#### DEMAND.

The turnover for the last three months has been steadily reduced, owing to the bad summer weather, and this has also effected the degree of occupation, which for all factories is only about 75 per cent. average. In certain respects imports from countries with a low exchange are

destructive to the Danish production, and the general reduction of the public purchasing power, combined with the fear of another sudden fall in the prices, has had the result that the dealers are only placing very small orders, and are buying only from hand to mouth. The imports of yarn as well as of manufactured goods, which showed a tendency to advance during the first quarter of the year has decreased somewhat, but it is still considerably higher than the case was during the corresponding period of 1922. The cotton mills are only working five days per week and several of the cotton weaving mills have stopped altogether.

#### THE CUSTOM HOUSE TARIFF

The present Danish Custom Law dates from 1908 and as it is made up on the weight basis the result is that the protection of Danish goods has, in consequence of the advance in prices, been three to four times reduced. The negotiations with the Government and the legislature regarding another Custom Tariff by which simply the old rates of duty might be brought up-to-date proportionate to the advance in prices have so far been without result. As a link in the propaganda amongst the public to support the home industry the "Danish Textile Manufacturers' Association" are arranging in Copenhagen, between the 7th and 17th of September this year, an extensive exhibition of all the various kinds of goods which are being manufactured here.

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#### ENGLAND.\*

The Federation of Master Cotton Spinners' Associations, Ltd., Manchester, reports :

Since presenting the last report on the State of Trade, organized curtailment of production in the American section on the basis of half-time working has been in operation and, at the time of going to press, the same amount of restricted production obtains in that section.

Spinners of Egyptian yarns are in a much better position than American spinners and although profits are not large, generally speaking, full time working obtains.

In the manufacturing section, a large number of looms are stopped and little, if any, improvement has taken place.

#### BASIC SELLING PRICES FOR STANDARD AMERICAN COUNTS OF YARN.

Commencing with the 1st of June last, basic selling prices for American yarns, below which spinners were strongly advised in their own, as well as in the general interest, not to sell yarns, were put into operation, and it is conceded on all hands that some improvement for a short time was effected in margins.

Reports, however, were presented which showed that some firms were not loyally carrying out the recommendation and following a ballot of the members concerned, which did not secure a sufficiently large enough majority to successfully continue the working of the scheme, it was reluctantly withdrawn by the Federation.

The Sub-Committee of the Federation are at present sitting for the purpose of considering whether the present is a suitable time to re-introduce the old scheme or a remodelled one.

\* The Board of Trade Reports for August of Exports of Cotton Yarn and Cloth will be found at the end of State of Trade Reports.

### SUGGESTED JOINT BOARD FOR THE COTTON TRADE.

Largely through the medium of the Press some spinners have insistently advocated the establishment of a joint Advisory Board consisting of representatives of the leading employers (spinning and manufacturing) and operatives' organizations on similar lines to the old Cotton Control Board which functioned during the war.

The Committee of the Federation were satisfied that the proposal was impracticable and would not be welcomed by the trade, but in order to satisfy the sponsors of the proposal, the Federation ordered a ballot of members to be taken on the following question :

" Are you in favour of the principle of establishing an Advisory Council for the cotton industry (consisting of representatives of the existing Master Cotton Spinners', Cotton Manufacturers', and Operatives' organizations) with full power to control production and to impose penalties upon firms who do not carry out its instructions ? "

Please reply " Yes " or " No."

The result of the ballot was as follows :

In favour	Against	No replies
25·38 per cent. of spindles and looms.	56·66 per cent. of spindles and looms	17·96 per cent. of spindles and looms

### RAW COTTON BUREAU.

With a view to assisting those of their members who find themselves in difficulties, owing to holding stocks of cotton for which they have no immediate requirement, on account of short-time working, the Federation have opened a Cotton Bureau at their offices. Samples of various types of cotton, supplied by members who are desirous of effecting a sale, are on view and may be seen on application.

Already by this means sales of upwards of 2,500 bales have taken place, and members who have cotton either to sell or to buy, are requested to communicate with the Secretary. The services of the Federation are, of course, purely directed to bringing interested parties together, the subsequent transaction, if any, being left to the parties concerned.

*The Lancashire Cotton Spinners' & Manufacturers' Association, Manchester, reports as to the Manufacturing Section of the Cotton Industry, under date September 11, 1923 :*

Although no organized short-time working in weaving has been arranged, many mills in various parts of the county are only working short-time, and only partial employment is provided at many mills even when they are working.

Much of the trade which is being done at present is only on an unremunerative basis and the prospect of an appreciable improvement is not in sight.

### FINLAND.

The demand for cotton goods has been quiet during the last few months, partly on account of the dead season and partly on account of the buyers' anticipation of a reduction in prices. This latter having taken place recently, it is expected that the trade for next season will soon revive.

Full time, however, is being worked except for the week's holiday granted to the operatives in June, according to the legislation enacted last year.

The cost of living, according to the official index figure, is slightly decreasing.

The following are the export and import figures of cotton goods during the last three months :

EXPORT.				IMPORT.			
April .. .. ..	..	2 tons		April .. ..	..	270 tons	
May .. .. ..	..	4 "		May .. ..	..	229 "	
June .. .. ..	..	3 "		June .. ..	..	142 "	

## FRANCE.

### STATE OF THE MARKET.

The general state of affairs has hardly undergone any change since our last report in BULLETIN No. 4 and remains relatively sound, for there is a current demand to satisfy immediate wants. But the great variations that still exist between the quotations for raw cotton, and the renewed tension of the rates of exchange do not allow to expect a notable increase in the demands. Prices continue to leave only very little, if any profit at all.

No stoppage of spindles has been reported. The activity of the spinners and weavers remains normal, and if some spindles and looms are idle it is in consequence of shortage of labour.

### WAGES.

There has been no alteration in the wages during the quarter.

### SITUATION OF THE MARKET.

Notwithstanding the perceptible increase in the price of cotton, owing to the rise in the rates of exchange, the average prices obtaining have hardly increased since the publication of the last BULLETIN.

		Warp 28 per kilo	Calicot 3/4 20 20 per metric
End of May .. .. .. ..	..	Fr. 13.95	Fr. 1.733
11th August .. .. .. ..	..	Fr. 14.277	Fr. 1.772

### EXPORTATION OF YARNS AND COTTON TEXTILES DURING THE FIRST AND SECOND QUARTERS OF 1923.

	I. COTTON YARNS.	First Quarter	Second Quarter
(a) Total (all classes) .. .. .. ..	100kg.	18,173	20,848
(b) Principal classes of yarn :			
Single yarns {			
Grey .. .. .. ..	100kg.	6,475	6,924
Bleached .. .. .. ..	"	235	456
Dyed or coloured .. .. .. ..	"	462	783
Glacés .. .. .. ..	"	398	556
Double yarns {			
Grey .. .. .. ..	"	1,281	2,088
Bleached .. .. .. ..	"	912	1,146
Dyed or coloured .. .. .. ..	"	4,286	4,524
Glacés .. .. .. ..	"	4,104	4,831

	2. COTTON CLOTH.	First Quarter	Second Quarter
(a) Total (all classes)	.. .. 100kg	83,341	107,005
(b) Principal classes of cloths :			
Grey	.. .. .. "	11,830	16,413
Bleached or made of bleached yarn	.. .. .. "	11,002	15,794
Bandages, grey or bleached	.. .. .. "	1,132	685
Dyed Textiles	.. .. .. "	32,931	46,954
Made with dyed yarn	.. .. .. "	4,031	4,221
Printed textiles	.. .. .. "	3,446	3,604
Velvet { 26 threads or less	.. .. .. "	179	218
{ More than 26 threads	.. .. .. "	493	483
Covers	.. .. .. "	7,694	5,871
Hosiery	.. .. .. "	2,971	3,208
Union materials	.. .. .. "	1,350	1,320

*The following is the original article in French.*

Le mouvement général des affaires ne s'est pas sensiblement modifié depuis les renseignements publiés dans le BULLETIN No. 4. La situation reste relativement saine car il y a un petit courant d'affaires pour des besoins immédiats. Mais le déport important qui existe encore entre les cours du coton brut et la nouvelle tension des changes ne permettent pas de compter sur une sérieuse extension de la demande. Les prix continuent à ne laisser que très peu, ou même pas, de bénéfice.

On ne constate pas de chômage. Les filatures et les tissages conservent une activité normale et si des broches et des métiers sont arrêtés c'est par suite du manque de main-d'œuvre.

#### SALAIRS.

Il n'y a aucune modification de salaire à signaler.

#### ÉTAT DU MARCHÉ.

Malgré une augmentation sensible du coton due au relèvement des changes, les prix moyens pratiqués sont à peine en hausse depuis le dernier BULLETIN.

	Chaîne 28 (le kilo)	Calicot 3/4 20 x 20 (le mètre)
Fin Mai	Fr. 13.95 ..	Fr. 1.733 ..
11 Août	Fr. 14.277 ..	Fr. 1.772 ..

#### EXPORTATION DE FILÉS ET TISSUS DE COTON PENDANT LES 1<sup>er</sup> ET 2<sup>me</sup> TRIMESTRES DE 1923.

	1 <sup>er</sup> FILÉS DE COTON.	1 <sup>er</sup> trimestre	2 <sup>me</sup> trimestre
(a) Chiffre total (toutes catégories)	.. .. 100kg	18,173	20,848
(b) Décomposition par principales catégories de filé :			
Fils simples	Ecrus .. .. .. "	6,475	6,924
	Blanchis .. .. .. "	283	456
	Teints ou chinés .. .. .. "	462	783
	Glacés .. .. .. "	398	556
Fils retors	Ecrus .. .. .. "	1,281	2,083
	Blanchis .. .. .. "	912	1,146
	Teints ou chinés .. .. .. "	4,286	4,524
	Glacés .. .. .. "	4,104	4,351

	2 <sup>e</sup> TISSUS DE COTON.	1 <sup>er</sup> trimestre	2 <sup>me</sup> trimestre
(a) Chiffre total (toutes catégories) .. ..	100kg.	83,341	107,065
(b) Décomposition par principales catégories de tissu :			
Ecrus .. .. ..		11,839	16,413
Blanchis ou fabriqués avec des fils blanchis .. ..	"	11,002	15,794
Bandes pour pansements écrues ou blanchies .. ..	"	1,132	685
Teints .. .. ..	"	32,931	46,954
Fabriqués avec des fils teints .. .. ..	"	4,031	4,221
Imprimés .. .. ..	"	3,416	3,694
Velours (26 fils ou moins .. .. ..	"	179	218
(plus de 26 fils .. .. ..	"	493	483
Couvertures .. .. ..	"	7,694	5,371
Bonneterie .. .. ..	"	2,971	3,208
Etoffes mélangées .. .. ..	"	1,350	1,520

## HOLLAND.

Since the last report the condition of the cotton trade has gone from bad to worse. In the spinning mills the demand for yarns is very poor. Prices are very low and in most cases cause a severe loss to the spinners. Most of the spinning mills are still working full time as they prefer selling at a loss than to increase the cost of production by stopping part of the week. The import of cotton yarns in Holland during the first seven months of 1923 amounts to 16,067 tons against 20,325 tons in the first seven months of 1922, which shows that the demand from the local industry has been much smaller this year. The demand for cotton goods has been very small, especially for the home trade. The number of unemployed in Holland has a tendency to increase ; wages in many industries have been reduced and the buying power of a great part of the population, also in the agricultural parts, is smaller than last year. As prices for cotton goods in most cases are still 100 to 150 per cent. higher than before the war, these goods are comparatively still very dear and the consumption of many kinds of goods has been reduced. Many weaving sheds working for domestic use, have large stocks and are stopped for one or two days per week ; others have part of their looms idle.

Weaving mills working for export are in a somewhat better condition. The prices for their goods are also poor and in most cases below cost of production, but for several of these mills it has been possible to sell their production, and although they have been suffering severe losses, they have been able to keep their workpeople fairly employed. The condition has been somewhat better for coloured goods as the exports of these class of goods has been slightly above last year. On the whole, the condition in the weaving mills is far from satisfactory and the prospects are still very poor.

Last month a conference was held between the employers federations and trade union officials to obtain a reduction of the wages in the cotton trade, but up to now no definite result has been obtained.

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## ITALY.

Since our last report in the June issue of this BULLETIN, the general situation of the cotton industry in Italy has not undergone any considerable change, except in an improvement in the exports to the Turkish and Asia Minor markets.

## NORWAY.

The trade conditions of the Norwegian cotton industry has undergone practically no alteration since our last report. The demand, which was expected to improve somewhat in the course of the spring, is still scarce and the production is consequently being maintained on a rather reduced level. The duration of the wages agreement arrived at on June 6 has been prolonged until March 31, 1924.

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## POLAND.

### WAGES.

The wages increased again owing to the depreciation of our currency.  
HOURS OF WORK.

We have still the 46-hour week. It is strictly adhered to.

### DEMAND.

Since our last report (our letter of the 12th May) the demand improved and is now satisfactory. Owing to the better demand the stagnation in our industry passed and the majority of our mills are now working full time.

### FUTURE OUTLOOK.

As we informed in our last letter of the 12th May, it is quite impossible in the liquid and unstable economical conditions in which we are working, to foresee the future development of things.

We are exporting about 15 per cent. of our goods. It is rather probable that in the nearest future our export trade will still diminish because of the severe competition on foreign markets and the high costs of our production due to the want of working capital, heavy State and local taxes, numerous holidays and very long leave of absence of which our workmen are allowed (every man working in a factory more than one year gets a leave of eight days, and working more than three years, a leave of 15 days. The wages during the leave of absence are payable in full).

### SPINDLES.

The number of cotton spindles did not change during the last year.

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## PORUGAL.

### WAGES

New arrangements have been arrived at to increase the wages in proportion to the lowest value of money and currency of exchange ; at the present time the workpeople are receiving about 20 times the pre-war rate of wages.

### PROSPECT OF DEMAND.

The demand is in the same conditions as before ; all production of the mills corresponds to the wholesale demand.

### EXISTING MACHINERY.

Some new spinning and weaving machinery is imported for special yarns to increase hosiery production and fine sewing yarn.

**IMPORT AND EXPORT GOODS.**

No statistics of import and export trade are published since 1922. Cotton yarn, fine counts, and light cloth for bleaching and dyeing in our special mills, are ever in progressive demand for domestic consumption and private export for Portuguese colonies.

**QUOTATIONS.**

As mentioned in our March report, a Limited Society is being organized under the style of " Sociedade Commercial Luso-Brazileira " to accomplish the resolution of the International Cotton Conference at its meeting at Rio de Janeiro in October, 1922, to establish shortly a commercial bonded warehouse from which all raw materials necessary for the ports and even for those or other markets can be supplied.

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**SPAIN.**

In order to represent the actual state of the cotton industry in Spain in anything approximating reality, we have to reproduce almost exactly what was stated in regard to it in the report of February last. The industrial crisis continues without any tendency to improve.

The months of sale for the summer season which, in prosperous and normal years, generally last from February to May, were limited to the months of February and March, and the forthcoming season of sales for the winter season, which in normal years extends from August to the middle of November, will be limited to two and a half months, to judge by the scanty importance of current demands.

The demand for goods of day-to-day sales shows inertness and is of lesser proportion than ordinarily, in consequence of which the prices of greys, which had maintained a higher level than coloured goods, have come down.

The prolongation of this crisis has, naturally, created a diminution in the output, which may be calculated at approximately 30 to 35 per cent. in the spinning, and at 40 to 45 per cent. in the weaving, thus directly affecting the gains of the industry, whose profits are below normal, including those spinning mills which, up to the months of March and April last, had well upheld their quotations.

A symptom of the quietness in the sales market is the fact that, in spite of the two months' strike of the transport workers of Barcelona (the principal centre of production in the cotton industry) causing the majority of the mills to stop through the impossibility to supply them, no increase in the demand for goods was noticeable at the end of the strike, which proves that the merchants have been able to meet the demand from the stock at their disposal.

We believe that the present crisis will not last longer in Spain than in the other countries, since it is not a crisis created by local circumstances, but has its origin in the causes of the altered economical conditions that govern the world at present, namely, less purchasing power on behalf of the buyer whom the increasing difficulties of life do not permit to buy except what is necessary, and, on the other hand, an increase in the means of production in all branches of the industry in general.

There is an increase in supply and a decrease in demand in such a manner that it is difficult to foresee what the end will be unless political and economical order are re-established in the near future.

It is expected that this will happen, for never before has Spain held larger available effects in her banks ; many new enterprises of great importance for the development of national activity have been supported, and the value of the peseta is so steady, owing to our legal reserves, that at present its material value is only comparable to the dollar and the pound sterling.

The harvests of cereals and vine look magnificent, especially the former, being as it is the basis of the agricultural wealth of Spain. Only under such a perspective may we hope that in the next report we shall be able to point to some small improvement in the textile industry.

## SWEDEN.

There is no alteration in the general condition of the industry since our last report. Wages will continue unchanged during the whole of this year. Mills are working full time.

### IMPORTS IN KILOS.

	Cotton yarns.		Cotton cloths.	
	1922	1923	1922	1923
April .. .. .	94.152	100.975	316.505	409.105
May .. .. .	86.256	96.463	261.386	292.508
June .. .. .	64.115	82.067	206.860	252.183

### EXPORTS IN KILOS.

	Cotton yarns.		Cotton cloths.	
	1922	1923	1922	1923
April .. .. .	23.850	57.403	22.510	31.967
May .. .. .	100.323	44.292	30.393	20.058
June .. .. .	100.900	42.006	18.887	20.016

## GERMANY

The *Berliner Tageblatt* of 21st August, shows the effect which the depreciation of the mark has had on the German cotton industry ; it says :

" Cotton prices are so high that in many cases they must be described as unpayable. Any large-sized purchase or sale has become impossible owing partly to the enormous rise in the dollar and partly to the official restrictions in regard to the acquisition of foreign currency and to the money shortage. In addition, there are the new taxes, which fall due immediately, and which will not only eat into all working capital but all reserves to such an extent that every purchase of goods will have to be deferred for the present. As a result of the stagnation in sales cash receipts have, moreover, diminished, and, as weavers only sell against immediate payment, even well-established wholesalers are for the time being unable to manage any longer.

" The price increases have had a devastating effect during the past few weeks and have called for enormous sums of money. On August 1, 1 kg. raw cotton cost in Bremen 680,286 marks, on August 6 1,055,126 marks, and on August 9 3,105,995 marks. Owing to the fall of the

dollar, the latter quotation declined to 1,750,000 marks on August 16. The price of raw material, therefore, rose threefold within two weeks. Prices for yarns and tissues became, of course, proportionately dearer; 88 cm. 16/16 cretonnes from 20/20 yarn, which cost 13 $\frac{1}{4}$  to 13 $\frac{1}{2}$  cents at the Stuttgart Exchange on July 15, were quoted at 143,000-145,700 marks on August 1 and 397,000-405,000 marks on August 15. For the purchase of one piece of 60 m., 30,000,000 marks are required. It is impossible for the middle and working classes to afford so much in the retail trade, particularly as all their available means must be applied towards the very high cost of living. Under the present conditions, even the wholesaler cannot raise so much, as a capital of three milliards is required for the purchase of only 100 pieces. But even if he had the means at his disposal he could not undertake the purchase, because the weavers require payment in foreign currency, and under the Foreign Exchange Decree he may not acquire the requisite dollars. In the weaving mills unemployment is increasing more and more, and if all the difficulties described restrict sales still further, work in the spinning and weaving mills will not be able to be maintained much longer."

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### U.S.A.

Though the cotton mills in the north and south during the last few months have been working almost at a loss, a revival has set in and the 15 per cent. short time which was run is gradually diminishing. Fair business is anticipated since some idea as to the size of the cotton crop has been formed. Many jobbers have held back their orders, which are now being placed. It is thought that October, November will see full employment with fair margins of profit.

Recent cable information confirms that business has considerably improved. Fall River sales have increased with improved prices of  $\frac{1}{2}$  to  $\frac{3}{4}$  cents per yard, and Southern mills are reported to be doing a considerable business. The turnover for the last week is said to be larger than any during the last six months. Complaints are made as to prices being still on the low side. The stock market has also improved. Messrs. Munds & Winslow, of New York, report in their last circular, dated August 31, as regards the general market conditions:

"In the last week or so security prices and the general market tendency have shown something of an improvement with an appreciable, though gradual, upward movement in evidence. The trading volume has been small, and while there has been a drift toward optimism in sentiment, it is only fair to state that enthusiasm on the buying side has been notably absent. So far as economic factors are concerned, at least those which relate to the outward business indications, a favourable impression has been created. Car loadings have approximated the peak for all time; money while in fair demand, has ruled at comfortable rates, with no immediate prospects for stringency. Barometric indications of a favourable character have made their appearance in the form of an increase in iron and steel orders, increased activity in the textile industry, and other fields of productivity, while a brisk retail trade and heavy bank clearings give evidence of healthy distribution. Certain developments in the European situation also give rise to the hope that progress if not already under way, will soon be made in the adjustment of reparations."

U.S.A.

## Exports and Imports of Raw Cotton, Cotton Manufactures for years ending June 1922 and 1923

Compiled from Monthly Summary of Foreign Commerce

Unit of Quantity	Twelve months ending June.			
	1922		1923	
	Quantity.	Value.	Quantity.	Value.
Raw unmanufactured				
planned and other ..	Bale	\$ 1,655,700	\$ 321,685,172	—
long staple (1½ in. or over) ..	Pound	1,880,723,886	—	—
Sea-island .. ..	Bale	230	37,553	946
	Pound	89,922	—	369,250
Other .. ..	Bale	355,295	150,139,059	844,087
	Pound	1,289,623,154	—	442,945,433
hort staple (under 1½ in.) .. ..	Bale	12,203,929	121,320,812	4,173,910
	Pound	11,125,482,292	—	2,139,444,319
inters .. ..	Bale	126,627	2,195,308	46,877
	Pound	62,938,494	—	23,973,146
al cotton unmanufactured ..	Bale	6,511,841	—	5,065,800
	Pound	3,358,874,748	—	2,626,732,147
<i>Exported to :</i>				
Austria .. ..	Bale	3,938	359,104	2,803
	Pound	2,003,919	—	1,479,876
Belgium .. ..	Bale	177,833	17,482,923	173,041
	Pound	93,136,041	—	92,884,306
Czechoslovakia .. ..	Bale	765	81,564	934
	Pound	397,059	—	403,567
France .. ..	Bale	786,107	73,408,709	664,442
	Pound	410,024,003	—	352,098,567
Germany .. ..	Bale	1,588,298	110,841,030	916,727
	Pound	808,336,758	—	472,824,351
Italy .. ..	Bale	153,073	43,082,418	354,897
	Pound	234,295,065	—	286,034,186
Netherlands .. ..	Bale	93,081	5,198,413	72,140
	Pound	48,101,703	—	37,908,219
Norway .. ..	Bale	6,279	624,307	3,950
	Pound	3,261,395	—	2,094,248
Poland and Danzig .. ..	Bale	17,042	1,531,106	21,085
	Pound	9,081,134	—	11,111,022
Portugal .. ..	Bale	19,062	1,806,882	23,342
	Pound	10,277,523	—	14,106,863
Spain .. ..	Bale	321,444	32,052,156	230,533
	Pound	170,775,095	—	123,121,820
Sweden .. ..	Bale	51,153	4,797,364	57,030
	Pound	26,827,106	—	30,285,827
Switzerland .. ..	Bale	4,680	444,879	2,945
	Pound	2,476,800	—	1,569,027
United Kingdom .. ..	Bale	1,766,058	172,142,253	1,389,108
	Pound	903,371,622	—	701,503,049
Other Europe .. ..	Bale	29,531	2,789,601	51,338
	Pound	15,485,730	—	27,781,581
Canada .. ..	Bale	108,650	17,186,477	213,234
	Pound	100,583,080	—	108,325,863
Mexico .. ..	Bale	6,130	364,277	15,362
	Pound	3,067,263	—	7,745,906
China .. ..	Bale	133,393	9,231,621	22,337
	Pound	67,190,247	—	11,356,176
Japan .. ..	Bale	879,615	76,926,472	661,864
	Pound	447,683,525	—	339,579,297
Other countries .. ..	Bale	4,708	373,408	4,188
	Pound	2,466,410	—	2,109,384
<i>Cotton manufactures (tot al) —</i>		122,935,340	—	145,360,208
Cotton mill waste ..	Pound	57,998,741	5,872,678	42,784,531
Cotton rags, except paper stock .. ..	"	9,078,363	487,311	9,515,017
Cotton yarn, thread and cordage :				
Yarn .. ..		*7,011,910	*2,421,326	—
Corded yarn, not combed .. ..	"	†4,997,373	†1,655,674	9,145,075
Combed yarn .. ..	"	†3,107,189	†1,683,046	5,109,360
Thread, sewing, crochet, etc. .. ..	"	—	*1,001,550	8,867,211
Sewing thread .. ..	"	†770,598	†855,993	1,040,649
Crochet, darning, and embroidery cotton .. ..	"	†145,787	†127,906	281,128
Twine and cordage .. ..	"	†1,705,328	†683,550	8,430,976

\* July 1 to Dec. 31, 1921.

† Jan. 1 to June 30.

## EXPORTS—Continued.

Unit of Quantity	Twelve months ending June.			
	1922		1923	
	Quantity.	Value.	Quantity.	Value.
Cotton Cloth (total) .. . . . sq. yd.	613,052,518	\$ 70,934,270	541,155,947	86,517,370
Duck (total) .. . . . "	9,182,334	3,320,517	9,138,486	4,130,506
Unbleached .. . . . "	7,352,316	2,731,485	6,925,993	3,230,216
Bleached .. . . . "	1,331,146	446,380	1,515,222	581,580
Coloured .. . . . "	498,872	151,452	977,371	318,730
All other cloth :				
Unbleached .. . . . "	233,483,375	21,568,154	137,218,946	16,532,036
<i>Exported to :</i>				
Greece .. . . .	9,182,757	887,784	3,481,940	467,884
Rumania .. . . .	4,261,648	148,488	4,238,730	539,510
Turkey in Europe .. . . .	27,640,265	2,648,806	8,245,089	1,023,598
Canada .. . . .	6,010,232	536,937	7,157,805	924,833
Salvador .. . . .	11,307,727	804,914	7,544,510	781,117
Other Central America .. . . .	17,748,742	1,476,435	12,460,053	1,431,379
Mexico .. . . .	1,513,092	170,742	534,571	83,532
Jamaica .. . . .	5,441,726	350,350	3,487,107	337,192
Cuba .. . . .	1,631,887	161,770	3,022,457	414,384
Dominican Republic .. . . .	650,377	61,508	1,754,588	180,619
Haiti .. . . .	8,119,787	644,061	5,453,187	613,390
Other West Indies .. . . .	1,706,502	151,007	975,795	116,467
Argentina .. . . .	12,104,274	1,433,735	8,035,811	1,227,718
Bolivia .. . . .	5,433,030	485,718	5,020,002	602,048
Chile .. . . .	10,405,587	1,510,517	11,673,301	1,572,708
Colombia .. . . .	7,257,930	622,870	8,038,787	951,603
Peru .. . . .	2,112,108	213,533	2,199,670	292,390
Venezuela .. . . .	920,300	92,450	1,062,302	164,285
Other South America .. . . .	5,024,979	433,892	4,104,273	507,012
Aden .. . . .	14,097,750	1,261,983	12,363,004	1,253,288
British India .. . . .	17,550,918	1,261,861	1,338,551	157,089
China .. . . .	24,933,303	2,478,811	3,033,584	494,838
Philippine Islands .. . . .	8,009,255	926,845	6,412,081	835,501
Australia .. . . .	2,198,732	214,408	809,411	104,637
British Africa .. . . .	2,638,876	325,968	2,428,532	233,115
Egypt .. . . .	4,310,817	470,903	1,487,320	147,492
Other countries .. . . .	13,706,074	1,303,527	8,068,405	1,042,366
Bleached	.. . . . sq. yd.	97,891,533	12,837,181	85,937,787
<i>Exported to :</i>				
Greece .. . . .	814,211	80,005	43,869	5,600
United Kingdom .. . . .	455,272	106,370	602,991	93,543
Canada .. . . .	9,730,708	1,302,911	8,491,690	1,237,198
Central America .. . . .	7,026,011	870,352	5,002,395	733,983
Mexico .. . . .	8,823,307	1,310,311	4,263,022	737,871
Cuba .. . . .	5,345,171	665,972	13,109,359	1,922,912
Dominican Republic .. . . .	939,603	134,394	1,465,639	210,903
Haiti .. . . .	2,070,211	240,005	1,928,804	290,073
Other West Indies .. . . .	4,007,687	542,178	1,073,226	317,720
Argentina .. . . .	3,053,886	627,992	3,780,403	708,859
Chile .. . . .	2,103,341	216,086	2,317,302	337,041
Colombia .. . . .	1,730,020	209,605	1,862,585	323,112
Peru .. . . .	905,947	114,417	1,262,872	195,611
Other South America .. . . .	3,048,821	385,083	2,083,738	360,611
British India .. . . .	2,819,460	351,366	1,287,437	165,718
China .. . . .	4,006,191	407,268	1,275,683	175,370
Philippine Islands .. . . .	31,378,634	4,191,342	30,905,719	4,619,782
Other countries .. . . .	8,339,933	977,024	4,200,508	559,638
Printed	.. . . . sq. yd.	107,977,510	12,678,851	110,317,515
<i>Exported to :</i>				
Canada .. . . .	10,188,436	1,790,752	7,082,213	1,010,820
Central America .. . . .	18,779,823	1,720,505	11,714,045	1,543,750
Mexico .. . . .	6,276,151	1,113,180	4,040,287	951,030
Jamaica .. . . .	2,674,834	278,025	1,112,521	141,048
Cuba .. . . .	14,961,671	1,504,446	26,134,750	3,509,425
Dominican Republic .. . . .	1,703,728	193,789	1,708,264	230,380
Haiti .. . . .	2,554,234	294,508	2,293,970	811,489
Other West Indies .. . . .	8,983,622	425,270	2,187,626	291,022
Argentina .. . . .	2,063,157	300,057	5,349,020	936,944
Chile .. . . .	1,258,438	139,001	2,072,916	318,540
Colombia .. . . .	6,761,966	722,410	12,440,367	1,552,035
Ecuador .. . . .	1,534,712	552,240	2,116,163	282,508
Peru .. . . .	1,267,707	148,637	1,648,682	298,272
Other South America .. . . .	2,811,011	313,251	3,911,930	611,508
Philippine Islands .. . . .	28,348,810	2,906,337	20,861,483	2,583,510
Other countries .. . . .	8,611,890	585,183	4,143,208	747,622

\* Stated in yards prior to Jan. 1, 1922.

## EXPORTS—Continued.

	Unit of Quantity	Twelve months ending June.			
		1922		1923	
		Quantity.	Value.	Quantity.	Value.
Piece dyed .. . . .	sq. yd. *	85,291,081	\$ 14,475,401	114,530,049	\$ 21,865,024
Exported to :					
Canada .. . . .	—	18,592,010	8,485,918	13,797,533	2,984,618
Central America .. . . .	—	11,077,056	1,692,219	8,788,935	1,613,582
Mexico .. . . .	—	7,923,885	1,686,632	6,337,783	1,443,299
Jamaica .. . . .	—	1,770,361	185,188	1,001,667	140,758
Trinidad and Tobago .. . . .	—	1,092,197	111,546	489,830	77,856
Cuba .. . . .	—	5,898,689	945,150	21,833,188	3,875,878
Dominican Republic .. . . .	—	1,349,088	200,852	2,085,488	841,176
Haiti .. . . .	—	1,850,468	250,551	2,030,678	357,298
Argentina .. . . .	—	9,213,498	1,554,556	12,188,875	2,229,123
Brazil .. . . .	—	1,477,595	196,281	3,756,097	602,224
Chile .. . . .	—	1,095,827	155,480	9,756,205	1,537,946
Colombia .. . . .	—	2,344,075	395,231	6,428,110	1,173,554
Peru .. . . .	—	705,574	158,813	2,988,815	668,617
Venezuela .. . . .	—	358,805	69,315	1,192,794	248,403
Other South America .. . . .	—	2,118,629	80,370	3,683,057	617,922
China .. . . .	—	1,893,081	201,837	291,184	48,028
Philippine Islands .. . . .	—	6,445,371	1,073,263	9,370,803	1,657,003
Australia .. . . .	—	720,685	140,438	654,483	153,867
British South Africa .. . . .	—	2,783,309	507,081	2,818,056	576,793
Other countries .. . . .	—	6,237,103	1,131,888	5,068,688	1,030,018
Yarn or stock, dyed .. . . .	sq. yd. *	70,224,233	\$ 12,045,076	\$ 83,093,004	\$ 15,592,173
Exported to :					
Norway .. . . .	—	618,966	101,594	839,098	169,307
Canada .. . . .	—	3,767,730	822,526	2,260,887	385,824
Central America .. . . .	—	9,980,721	1,318,002	7,406,872	1,310,814
Mexico .. . . .	—	4,607,887	816,170	1,745,352	442,493
Jamaica .. . . .	—	3,189,592	816,001	2,299,092	345,601
Cuba .. . . .	—	1,803,217	288,317	9,373,912	1,805,693
Dominican Republic .. . . .	—	2,826,378	368,203	4,838,807	796,798
Haiti .. . . .	—	10,745,185	1,542,128	8,167,148	1,490,132
Argentina .. . . .	—	6,495,674	1,074,200	5,119,967	1,071,673
Chile .. . . .	—	3,181,805	128,121	4,232,278	798,000
Colombia .. . . .	—	4,765,479	720,340	5,692,408	1,064,242
Ecuador .. . . .	—	1,180,292	150,987	1,897,770	298,946
Peru .. . . .	—	1,083,639	102,373	2,297,249	466,725
Venezuela .. . . .	—	421,393	67,010	1,273,966	232,832
Other South America .. . . .	—	2,370,058	392,873	1,808,314	324,721
Philippine Islands .. . . .	—	10,986,326	1,605,715	14,124,630	2,304,020
Australia .. . . .	—	4,779,465	830,493	4,068,495	882,680
New Zealand .. . . .	—	830,172	181,804	942,014	265,808
Other countries .. . . .	—	5,093,458	817,420	5,004,285	1,036,172
Other cotton fabrics:					
Blankets .. . . .	Pound.	—	997,380	1,546,541	972,579
Damasks .. . . .	sq. yd. *	†229,823	†71,817	670,132	222,010
Pile fabrics, plushes, velveteens, and corduroys .. . . .	"	†207,518	†170,354	640,827	549,884
Tapestries and other upholstery goods .. . . .	Pound.	†58,182	†84,010	163,128	186,966
Other cotton fabrics, n.e.s. .. . .	—	†2,040,323	†1,040,510	4,033,214	2,312,004
Cotton wearing apparel (total) .. . .	—	—	18,327,867	—	27,316,806
Knit goods :					
Gloves .. . . .	doz. pair	†34,047	†49,419	63,917	104,899
Hosiery .. . . .	"	3,380,101	6,831,802	5,606,927	11,126,230
Exported to :					
France .. . . .	—	25,322	79,021	121,568	335,597
United Kingdom .. . . .	—	768,180	1,839,194	885,263	1,062,708
Canada .. . . .	—	407,389	595,828	495,617	828,971
Central America .. . . .	—	145,068	254,042	193,498	350,328
Mexico .. . . .	—	144,147	377,405	187,320	395,453
British West Indies .. . . .	—	113,517	176,177	114,648	191,895
Cuba .. . . .	—	442,204	575,859	1,292,570	2,121,493
Argentina .. . . .	—	583,733	1,563,093	800,149	1,099,614
Colombia .. . . .	—	24,303	44,424	178,324	290,229
Uruguay .. . . .	—	87,318	173,433	198,524	350,111
Venezuela .. . . .	—	40,329	67,833	79,000	121,178
Other South America .. . . .	—	131,178	144,422	306,887	592,916
Philippine Islands .. . . .	—	29,080	75,255	87,368	176,872
Australia .. . . .	—	103,697	173,410	150,808	321,524
Other countries .. . . .	—	331,856	689,404	515,855	987,441
Underwear .. . . .	dozen	—	4,237,093	1,670,248	6,611,216
Sweaters, shawls, and other knit goods .. . . .	Pound	—	311,469	447,303	425,325

\* Stated in yards prior to Jan. 1, 1921.

† Jan. 1 to June 30.

## EXPORTS.—Continued

Unit of Quantity.	Twelve months ending June.			
	1922		1923	
	Quantity.	Value.	Quantity.	Value.
Other wearing apparel for men and boys		\$		\$
Collars and cuffs .. . . . .	dozen	277,034	258,608	417,516
Overall .. . . . .	number	184,543	†109,414	231,487
Underwear, not knit .. . . . .	"	1509,732	318,671	1,382,537
Shirts .. . . . .	"	1727,887	†678,550	2,753,688
Other cotton clothing .. . . . .	Pound	—	2,278,116	1,751,824
Other wearing apparel for women and children				
Corsets .. . . . .	number	—	1,726,446	1,179,998
Dresses and skirts .. . . . .	"	†168,280	†261,006	177,342
Shirt waists and blouses .. . . . .	"	†127,470	†114,191	144,147
Underwear, not knit .. . . . .	"	†319,303	†111,044	687,884
Other cotton clothing .. . . . .	Pound	—	1,194,812	456,672
Handkerchief .. . . . .	dozen	†44,797	†98,739	435,168
Laces and embroideries .. . . . .	yard	—	456,226	9,471,468
Lace window curtains .. . . . .	"	1208,658	†58,770	356,757
Cotton belting .. . . . .	Pound	—	—	†68,874
Cotton bags .. . . . .	"	†1,598,483	†356,045	2,769,155
Mattresses .. . . . .	number	†5,092	†42,566	13,750
Quilts and comforters .. . . . .	"	†29,150	†48,925	78,042
Sheets and pillowcases .. . . . .	"	†112,611	†83,028	224,120
Towels and bath mats .. . . . .	"	†1,857,838	†362,712	5,780,015
Other manufactures of cotton, n.e.s. .. . . . .	Pound	—	8,882,512	13,397,420
				7,074,185

\*Stated in yards prior to Jan. 1, 1921.

† Jan. 1 to June 30.

## IMPORTS.

Unit of Quantity	Twelve months ending June.			
	1922		1923	
	Quantity	Value	Quantity	Value
Cotton, unmanufactured :				
Long staple .. . . . .	Pound	\$	\$	\$
free .. . . . .	—	22,024,268	7,188,717	*4,175,596
Short staple .. . . . .	free .. . . . .	"	—	†72,615,881
free .. . . . .	—	157,140,787	36,769,174	159,300,942
Total .. . . . .	—	179,165,055	43,957,891	238,002,419
Imported from :				
United Kingdom .. . . . .	"	5,509,225	1,827,737	5,274,508
Mexico .. . . . .	"	26,818,225	4,707,029	15,388,478
Peru .. . . . .	"	17,438,458	3,790,097	10,885,486
British India .. . . . .	"	5,166,749	685,259	8,894,607
China .. . . . .	"	7,656,667	1,252,179	24,702,329
Egypt .. . . . .	"	110,921,695	30,561,584	137,900,018
Other countries .. . . . .	"	5,369,036	1,134,006	12,936,903
Cotton manufactures (total) .. . . . .	—	—	88,196,434	—
Waste .. . . . .	free .. . . . .	Pound	4,605,387	269,829
Yarns and warps .. . . . .	dut.. . . . .	"	3,980,739	4,524,097
Not bleached, dyed, coloured, etc. .. . . . .	dut.. . . . .	"	—	—
Bleached, dyed, coloured, combed or piled .. . . . .	dut.. . . . .	"	—	—
Sewing thread, crochet, darning, and knitting cotton .. . . . .	dut.. . . . .	100 yds.	45,726,004	2,806,323
Cotton cloth (total) .. . . . .	—	—	149,432,800	40,318,837
Not Bleached .. . . . .	dut.. . . . .	sq. yd.	26,734,473	5,011,389
Imported from :				
France .. . . . .	"	"	—	—
Switzerland .. . . . .	"	"	—	—
United Kingdom .. . . . .	"	"	—	—
Other countries .. . . . .	"	"	—	—
Bleached .. . . . .	dut.. . . . .	"	27,591,362	7,181,841
Imported from :				
France .. . . . .	"	"	—	—
Switzerland .. . . . .	"	"	—	—
United Kingdom .. . . . .	"	"	—	—
Japan .. . . . .	"	"	—	—
Other countries .. . . . .	"	"	—	—

\* July 1 to Sept. 22. † Beginning Sept. 22

## IMPORTS —Continued.

	Unit of Quantity	Twelve months ending June.			
		1922		1923	
		Quantity.	Value.	Quantity.	Value.
Coloured, dyed, printed, etc., and woven-figured .. dut..	"	95,106,965	\$ 28,175,807	—	\$ 21,711,405
<i>Imported from :</i>					
France .. .. .. ..	"	—	—	—	—
Switzerland .. .. .. ..	"	—	—	—	—
United Kingdom .. .. .. ..	"	—	—	—	—
Japan .. .. .. ..	"	—	—	—	—
Other countries .. .. .. ..	"	—	—	—	—
Cotton fabrics, n.e.s.:	Pound	—	—	†144,791	†234,198
Damasks and manufactures of, dut					
Pile fabrics and Terry-woven fabrics .. .. dut..	"	—	213,281	—	409,102
Tapestries and other Jacquard-woven upholstery goods .. dut..	"	—	1,283,369	—	1,010,924
Knit goods .. .. dut..	"	—	—	†17.530	†84,322
Wearing apparel (total) .. .. —		—	12,757,598	—	12,128,891
Product of the Philippine Islands .. free..		—	3,464,992	—	1,079,343
Knit goods:					
Gloves .. .. dut.. doz. prs.	1,395,125	3,916,972	*482,772	*1,348,915	
Wrap-knit single fold, and other .. .. dut..	"	—	—	†906,930	13,298,244
Two or more fold, wholly or partly of warp-knit fabric, dut..	"	—	—	†258,593	†1,097,936
Hosiery .. .. dut..	"	1,421,616	2,000,098	778,672	1,585,829
Underwear .. .. dut.. dozen	16,296	89,939	—	20,966	147,339
Wearing apparel wholly or partly of lace, or embroidered, beaded, etc. .. .. dut..		—	—	—	†2,072,234
All other .. .. dut..		—	3,285,597	—	1,293,751
Handkerchiefs and muffles.. dut..	dozen	2,936,090	2,456,983	*387,018	*345,687
Not hemmed .. .. dut..	Pound	—	—	+7,513	+20,844
Hemmed or hemstitched .. .. dut..	"	—	—	†156,144	†435,740
Lace-trimmed, embroidered, etc. dut..	"	—	—	†81,263	†356,189
Laces, embroiderics, etc. (total) ..		—	17,002,057	—	13,014,348
Product of the Philippine Islands .. .. free..		—	91,305	—	89,848
Hand-made laces .. .. dut..	Pound	—	1,469,152	—	2,438,712
<i>Imported from :</i>					
France .. .. .. ..	"	—	—	—	56,084
Germany .. .. .. ..	"	—	—	—	17,644
Switzerland .. .. .. ..	"	—	—	—	12,468
United Kingdom .. .. .. ..	"	—	—	—	6,064
China .. .. .. ..	"	—	—	—	2,245,898
Other countries .. .. .. ..	"	—	—	—	100,574
Machine-made laces .. .. dut..	"	—	8,034,855	—	6,018,778
<i>Imported from :</i>					
France .. .. .. ..	"	—	—	—	3,196,680
Germany .. .. .. ..	"	—	—	—	2,216,689
Switzerland .. .. .. ..	"	—	—	—	389,206
United Kingdom .. .. .. ..	"	—	—	—	734,017
China .. .. .. ..	"	—	—	—	492,777
Other countries .. .. .. ..	"	—	—	—	159,409
Articles made in part of lace .. dut..	"	—	—	1203,890	†835,450
Nets, netting, veils, and veiling dut..	sq. yd.	—	1,757,452	—	1,366,453
Lace window curtains .. dut..	sq. yd.	1,443,202	716,622	1,543,926	646,289
Embroideries .. .. dut..	Pound	—	1,762,338	—	898,860
<i>Imported from :</i>					
France .. .. .. ..	"	—	58,375	—	36,488
Germany .. .. .. ..	"	—	76,988	—	84,381
Switzerland .. .. .. ..	"	—	1,514,698	—	716,881
China .. .. .. ..	"	—	112,277	—	15,112
Other countries .. .. .. ..	"	—	—	—	46,998
All other laces, embroiderics, etc. dut..	"	—	3,140,043	—	1,800,010
Other cotton manufactures .. dut		—	6,584,180	—	4,828,305

\*July 1 to Sept. 21.

†Beginning Sept. 22.

## ENGLAND'S COTTON YARN AND CLOTH EXPORTS DURING AUGUST, 1923

The following table is an extract from the Board of Trade returns during August and the corresponding month of the two preceding years:

### YARN

		1921 lb.	1922 lb.	1923 lb.
Sweden .. . . . .	27,600	132,700	146,500	
Norway .. . . . .	70,900	155,900	124,200	
Denmark .. . . . .	49,400	223,900	79,400	
Poland (including Dantzig) .. . . . .	103,100	70,800	34,200	
Germany .. . . . .	2,281,900	3,589,800	2,713,300	
Netherlands .. . . . .	4,592,200	3,094,800	3,424,400	
Belgium .. . . . .	383,200	521,900	402,900	
France .. . . . .	151,300	848,600	408,100	
Switzerland .. . . . .	406,300	614,600	584,400	
Austria .. . . . .	10,900	20,700	54,400	
Bulgaria .. . . . .	455,000	320,600	630,000	
Rumania .. . . . .	969,200	88,600	199,800	
Turkey .. . . . .	96,100	75,100	78,700	
Egypt* .. . . . .	—	—	47,500	
Dutch East Indies .. . . . .	16,000	200,500	34,200	
China (including Hong Kong) .. . . . .	150,000	53,100	71,400	
United States of America .. . . . .	204,200	588,700	242,300	
Argentine Republic .. . . . .	142,500	313,000	252,000	
Egypt (including Anglo-Egyptian Sudan) <sup>1</sup> .. . . . .	116,800	80,700	—	
British India :				
Bombay (via Karachi) .. . . . .	111,900	78,800	72,500	
Other ports .. . . . .	1,738,000	1,017,200	682,200	
Madras .. . . . .	858,900	508,400	587,700	
Bengal, etc. .. . . . .	745,900	572,700	510,900	
Burmah .. . . . .	16,000	260,800	22,100	
Straits Settlements .. . . . .	56,300	47,800	24,900	
Canada .. . . . .	91,700	115,800	98,300	
Other countries .. . . . .	1,490,600	1,522,000	1,381,500	
Total .. . . . .	15,285,600	15,408,500	12,802,800	

\*Egypt and Anglo-Egyptian Sudan are shown separately and Egypt is shown as a foreign country from 1923.

### PIECE GOODS

		1921 sq. yds.	1922 sq. yds.	1923 sq. yds.
Sweden .. . . . .	278,900	1,977,400	2,389,500	
Norway .. . . . .	306,600	1,493,800	829,100	
Denmark .. . . . .	934,900	2,440,800	1,980,400	
Germany .. . . . .	2,189,600	14,929,600	2,591,400	
Netherlands .. . . . .	1,407,700	2,717,200	2,720,000	
Belgium .. . . . .	1,809,000	4,407,200	2,916,700	
France .. . . . .	386,400	8,318,200	898,000	
Switzerland .. . . . .	2,097,500	14,498,200	7,515,500	
Portugal, Azores and Madeira .. . . . .	816,500	2,050,900	1,868,500	
Italy .. . . . .	845,900	1,101,100	1,184,500	
Greece .. . . . .	2,116,500	2,776,600	1,901,800	
Rumania .. . . . .	1,885,800	8,099,300	1,736,400	
Turkey .. . . . .	8,951,000	7,112,000	5,947,000	
Syria .. . . . .	8,604,800	2,193,800	3,326,400	

PIECE GOODS (*continued*).

		1921 sq. yds.	1922 sq. yds.	1923 sq. yds.
Egypt .. .. .. ..	10,404,800	10,293,000	13,242,300	
Morocco .. .. .. ..	6,060,000	3,181,500	4,022,000	
Foreign West Africa .. .. .. ..	446,200	4,412,700	8,879,300	
Foreign East Africa .. .. .. ..	202,900	570,500	463,500	
Persia .. .. .. ..	29,400	1,586,800	180,300	
Dutch East Indies .. .. .. ..	9,020,700	10,805,900	9,635,600	
Philippine Islands and Guam .. .. .. ..	23,500	49,100	980,000	
Siam .. .. .. ..	411,100	2,237,000	1,860,700	
China (including Hong Kong) .. .. .. ..	12,268,700	26,022,000	24,165,800	
Japan .. .. .. ..	877,600	1,374,000	1,388,000	
United States .. .. .. ..	3,117,600	7,473,700	12,068,100	
Cuba .. .. .. ..	425,900	647,200	2,177,700	
Mexico .. .. .. ..	726,400	730,200	1,026,900	
Central America .. .. .. ..	378,800	1,290,800	1,870,600	
Colombia .. .. .. ..	539,400	2,608,400	2,866,900	
Venezuela .. .. .. ..	291,000	911,600	2,741,100	
Ecuador .. .. .. ..	323,600	1,086,800	445,200	
Peru .. .. .. ..	140,200	1,473,100	1,606,100	
Chile .. .. .. ..	455,500	4,460,000	4,086,300	
Brazil .. .. .. ..	510,000	2,719,000	2,607,300	
Uruguay .. .. .. ..	296,200	1,302,500	1,617,200	
Argentine Republic .. .. .. ..	7,705,900	14,070,300	14,896,700	
British West Africa .. .. .. ..	3,998,100	6,890,900	7,376,700	
British South Africa .. .. .. ..	4,626,900	7,036,300	5,902,600	
British East Africa .. .. .. ..	543,200	1,487,900	1,143,100	
Anglo-Egyptian Sudan .. .. .. ..	190,600	448,200	476,500	
Iraq .. .. .. ..	1,280,600	11,026,000	2,245,900	
British India:				
Bombay, (via Karauloi) .. .. .. ..	8,652,700	16,825,400	21,862,600	
Other ports .. .. .. ..	10,264,500	21,303,100	33,381,800	
Madras .. .. .. ..	4,915,800	7,178,500	7,962,600	
Bengal, etc. .. .. .. ..	80,419,700	85,661,600	53,207,900	
Burma .. .. .. ..	1,787,700	6,165,700	4,838,000	
Straits Settlements and Federated				
Malay States .. .. .. ..	1,940,200	4,089,300	6,098,000	
Ceylon .. .. .. ..	683,600	1,686,200	2,262,200	
Australia .. .. .. ..	6,977,000	20,088,900	12,864,800	
New Zealand .. .. .. ..	1,003,600	4,125,200	2,783,000	
Canada .. .. .. ..	1,187,900	2,973,400	4,456,100	
British West India Islands (including				
Bahamas and Guiana) .. .. .. ..	498,000	1,355,400	2,674,900	
Other countries .. .. .. ..	3,972,200	15,482,300	12,618,900	
Total .. .. .. ..	212,402,800	377,985,000	829,945,600	

It will be noticed that there is a fall in the piece goods from 137,129,300 to 121,197,300 square yards in exports to India, Bengal having suffered a severe decline of 22½ million square yards. As was to be expected, our exports to Germany have fallen considerably from 15 millions to about 2½ millions. Switzerland has reduced her takings by almost half. China and Australia are also conspicuous by their declines. The following increases have taken place :

	1923 sq. yds.	1922 sq. yds.
Egypt .. .. .. ..	13,242,300	10,293,000
U.S. America .. .. .. ..	12,968,100	7,473,700
Argentina .. .. .. ..	14,896,700	14,070,300
Venezuela .. .. .. ..	2,741,100	911,600
Cuba .. .. .. ..	2,177,700	647,200

## INDIA.

## DETAILED STATEMENT of the QUANTITY (in pounds) and the COUNTS (or numbers) of YARN Spun

GRAND TOTAL, INDIA (BRITISH INDIA AND INDIAN STATES)

COUNT OR NUMBER	TWO MONTHS, APRIL AND MAY		
	1921	1922	1923
1 .. .. .. .. ..	448,632	233,880	780,941
2 .. .. .. .. ..	381,040	695,218	759,574
3 .. .. .. .. ..	457,556	425,588	512,668
4 .. .. .. .. ..	951,772	942,256	1,033,814
5 .. .. .. .. ..	607,276	154,378	231,039
6 .. .. .. .. ..	925,251	2,038,510	1,329,216
7 .. .. .. .. ..	8,045,900	2,481,763	2,930,084
8 .. .. .. .. ..	732,446	785,129	930,597
9 .. .. .. .. ..	1,895,983	1,998,794	2,017,247
10 .. .. .. .. ..	5,069,900	6,159,828	4,668,673
Total, Nos. 1 to 10 ..	14,573,715	15,905,548	15,193,858
11 .. .. .. .. ..	8,989,148	8,840,571	5,740,083
12 .. .. .. .. ..	7,451,282	7,455,822	6,040,015
13 .. .. .. .. ..	3,682,905	3,773,523	5,950,738
14 .. .. .. .. ..	4,355,590	4,408,951	4,516,388
15 .. .. .. .. ..	1,834,949	2,300,256	3,368,601
16 .. .. .. .. ..	5,496,953	4,676,228	4,873,670
17 .. .. .. .. ..	2,996,381	3,587,700	2,725,649
18 .. .. .. .. ..	3,185,327	2,696,587	3,482,868
19 .. .. .. .. ..	1,855,135	2,458,853	2,108,629
20 .. .. .. .. ..	20,128,995	21,213,658	17,055,819
Total, Nos. 11 to 20 ..	59,921,625	61,442,101	55,337,430
21 .. .. .. .. ..	7,225,861	7,961,555	5,854,083
22 .. .. .. .. ..	7,753,392	7,874,621	5,518,884
23 .. .. .. .. ..	632,931	769,436	738,643
24 .. .. .. .. ..	8,507,368	9,298,104	7,578,903
25 .. .. .. .. ..	187,372	296,512	131,486
26 .. .. .. .. ..	1,685,898	2,098,719	1,632,084
27 .. .. .. .. ..	901,641	863,608	633,008
28 .. .. .. .. ..	1,394,712	1,738,078	1,132,193
29 .. .. .. .. ..	176,856	401,887	120,500
30 .. .. .. .. ..	4,114,762	4,094,805	2,887,584
Total, Nos. 21 to 30 ..	32,620,788	33,401,823	26,221,458
31 .. .. .. .. ..	507,991	213,845	18,390
32 .. .. .. .. ..	1,623,319	1,520,037	1,119,288
33 .. .. .. .. ..		6,378	
34 .. .. .. .. ..	871,076	827,963	280,672
35 .. .. .. .. ..			
36 .. .. .. .. ..	178,071	219,157	162,663
37 .. .. .. .. ..			
38 .. .. .. .. ..	44,840	214,625	24,207
39 .. .. .. .. ..			
40 .. .. .. .. ..	580,830	619,388	583,363
Total, Nos. 31 to 40 ..	8,801,727	8,121,388	2,138,583
Above 40 .. .. .. ..	406,471	373,888	358,814
Wastes, etc. .. .. .. ..	85,083	36,913	45,681
GRAND TOTAL .. ..	110,861,400	116,281,613	99,815,819

**DETAILED STATEMENT of the QUANTITY (in pounds) and the COUNTS (or numbers) of YARN Spun for last three years.**

**GRAND TOTAL, INDIA (BRITISH INDIA AND INDIAN STATES)**

COUNT OR NUMBER	TWELVE MONTHS, APRIL TO MARCH		
	1920-21	1921-22	1922-23
1 .. .. .. .. ..	1,482,767	1,827,353	2,320,698
2 .. .. .. .. ..	3,006,051	3,430,317	4,221,755
3 .. .. .. .. ..	2,681,287	3,184,548	3,048,629
4 .. .. .. .. ..	4,328,119	5,345,445	5,543,043
5 .. .. .. .. ..	712,251	1,878,167	1,084,573
6 .. .. .. .. ..	9,428,390	10,786,674	11,705,189
7 .. .. .. .. ..	10,225,050	18,556,870	16,815,601
8 .. .. .. .. ..	4,971,056	5,778,176	8,085,787
9 .. .. .. .. ..	9,262,920	12,052,841	18,958,298
10 .. .. .. .. ..	37,850,183	36,282,218	36,077,897
Total, Nos. 1 to 10 ..	88,948,074	99,067,099	102,970,415
11 .. .. .. .. ..	46,377,420	38,809,562	45,517,481
12 .. .. .. .. ..	45,055,806	44,500,076	42,679,548
13 .. .. .. .. ..	19,801,430	23,038,324	24,478,300
14 .. .. .. .. ..	28,715,688	27,475,784	29,467,881
15 .. .. .. .. ..	14,800,245	15,773,905	16,489,481
16 .. .. .. .. ..	39,772,425	31,588,250	28,322,972
17 .. .. .. .. ..	14,205,196	19,873,689	18,890,645
18 .. .. .. .. ..	22,897,330	19,259,948	22,852,038
19 .. .. .. .. ..	7,820,445	12,508,881	18,554,820
20 .. .. .. .. ..	120,075,815	122,121,701	133,331,978
Total, Nos. 11 to 20 ..	850,527,826	871,452,020	875,579,644
21 .. .. .. .. ..	45,788,656	48,041,183	48,588,970
22 .. .. .. .. ..	47,850,789	45,472,808	45,742,691
23 .. .. .. .. ..	4,290,428	4,965,555	3,908,865
24 .. .. .. .. ..	49,971,813	53,731,709	55,885,965
25 .. .. .. .. ..	1,067,859	1,367,695	1,514,761
26 .. .. .. .. ..	10,045,886	12,042,481	13,814,878
27 .. .. .. .. ..	5,757,423	4,889,684	5,205,517
28 .. .. .. .. ..	9,054,630	8,605,575	8,682,283
29 .. .. .. .. ..	578,901	1,990,804	2,196,169
30 .. .. .. .. ..	25,180,803	25,104,462	24,474,218
Total, Nos. 21 to 30 ..	199,085,748	208,161,956	208,958,812
31 .. .. .. .. ..	937,216	1,150,999	729,116
32 .. .. .. .. ..	7,248,688	8,644,997	8,806,894
33 .. .. .. .. ..	837,850	77,683	8,782
34 .. .. .. .. ..	2,579,896	1,921,175	1,643,153
35 .. .. .. .. ..	39,436	34,385	29,384
36 .. .. .. .. ..	769,466	1,235,849	1,048,151
37 .. .. .. .. ..	12,151	4,872	1,823
38 .. .. .. .. ..	349,693	375,524	816,614
39 .. .. .. .. ..	162	—	—
40 .. .. .. .. ..	2,214,831	3,435,752	3,845,468
Total, Nos. 31 to 40 ..	15,024,389	16,900,186	15,980,867
Above 40 .. .. .. ..	2,067,168	2,889,279	2,195,291
Wastes, etc. .. .. .. ..	854,892	492,459	218,714
GRAND TOTAL .. ..	660,002,597	693,462,999	705,848,248

## CHINA.

## CHINESE IMPORTS AND EXPORTS OF RAW COTTON, COTTON YARN AND CLOTH DURING FIRST SIX MONTHS OF 1923.

Compiled by the China Cotton Millowners' Association from the Daily Records of Shanghai Customs House

## IMPORTS

	January	February	March	April	May	June	Total
1. Cotton, Raw (in piculs)							
From Nanking							
" Wuhu ..	5,853	2,013	162	—	—	—	410
" Kiukiang	11,638	7,043	2,365	761	1,343	1,085	8,080
" Hankow	218,810	111,258	109,932	48,663	43,290	63,314	24,137
" Kiao-chow	567	23	96	—	373	30	1,298
" Tientsin	22,050	1,600	9,339	4,629	1,277	101	39,005
" Dairen ..	—	2,902	1,982	—	—	—	4,884
" Ningpo ..	7,717	3,446	1,782	2,279	1,062	1,464	17,700
" other ports ..	2,503	—	—	—	243	—	2,748
Total from Chinese ports	268,642	128,886	120,018	56,332	49,992	67,994	697,364
From U S A ..	2,536	12,181	1,560	16,108	6,992	12,500	51,967
" Japan ..	4,505	13,124	2,159	12,243	21,273	22,172	73,476
" India ..	4,885	47,780	232,978	224,487	248,241	97,899	856,279
" Egypt ..	—	—	2,381	—	—	—	2,381
" Other countries	—	—	4,234	—	1,443	432	6,100
Total (from foreign countries)	11,926	73,094	213,312	252,928	277,949	133,003	992,212
From Hongkong	—	—	—	320	—	—	520
Grand Total	280,568	201,480	369,830	309,780	327,941	200,997	1,690,006
2. Cotton, Waste (in piculs)							
From Wuhu ..	30	86	—	27	—	—	113
" Hankow	211	89	989	700	40	367	2,316
" Kiao-chow	—	—	—	53	491	1,737	2,286
" Tientsin	361	—	—	399	50	—	810
" Ningpo ..	32	30	—	180	—	178	426
" Other Chinese ports ..	24	—	200	—	—	—	224
Total ..	678	111	1,180	1,361	584	2,282	6,205
3. Cotton, Fly (in piculs)							
From Hankow	603	1,102	1,239	819	423	337	4,523
" Wuhu ..	—	—	—	—	—	21	21
" Kiao-chow	90	—	133	—	405	308	936
" Ningpo ..	246	366	—	228	728	418	1,986
Total ..	939	1,468	1,372	1,047	1,556	1,084	7,460
4. Cotton Yarn (in piculs)							
From Soochow	—	2,146	216	896	815	126	4,190
" Wuhu ..	4,726	—	—	—	206	—	4,932
" Kiukiang	—	—	—	—	63	—	63
" Hankow	—	424	154	—	62	78	718
" Kiao-chow	—	31	—	—	218	—	240
" Tientsin	82	—	—	—	—	—	82
" Ningpo ..	3,590	—	1,199	1,958	2,678	1,228	10,648
" Canton ..	—	154	—	—	—	—	154
" Other ports ..	1,906	904	126	232	168	2,297	5,653
Total (from Chinese ports ..	10,304	3,639	1,695	3,101	4,210	3,724	20,693

IMPORTS—*Continued*

	January	February	March	April	May	June	Total
(Cotton Yarn— <i>contd.</i> )							
From Japan ..	—	—	—	55	—	—	55
" 17's ..	67	—	8	32	40	25	167
" 28's ..	2,688	2,622	7,461	13,270	393	50	26,487
" 35's ..	1,946	937	811	4,393	2,323	1,463	11,875
" 43's ..	4,269	4,492	491	1,870	461	2,242	18,825
" over 45's ..	—	—	—	48	—	—	48
Gt Britain							
45's and							
over 45's ..	—	—	—	42	—	1	43
" U.S.A. 45's ..	—	—	—	—	—	89	39
" India 17's ..	—	—	750	—	1,950	1,950	4,650
" 28's ..	—	—	—	—	1,500	—	1,500
" 45's ..	—	—	—	—	—	75	75
Total (from foreign countries) ..	8,063	8,051	9,516	19,710	6,669	5,853	58,764
From Hongkong	30	—	—	—	9	—	39
Grand Total	19,299	11,710	11,211	22,811	10,888	9,377	85,496
5. Cotton Yarn, From Hankow	Waste (in piculs)						
" Wuhu ..	33	307	23	100	90	104	657
" Kiaochow ..	—	—	—	—	—	25	25
" Tientsin ..	293	—	62	—	—	—	62
" Ningpo ..	—	193	103	—	—	840	745
Total ..	326	500	188	100	193	491	1,800
6. Cotton Yarn, From Japan ..	Mercerized (in piculs)						
" U.S.A. ..	196	322	283	82	81	411	1,377
" Hongkong ..	—	—	12	—	—	9	12
Total ..	196	322	297	82	81	420	1,398
7. Cotton Thread, From Chefoo ..	on Spools (in Gross)						
" Newchwang ..	—	136	56	677	—	—	869
" Swatow ..	—	39	—	—	616	—	616
Total (from Chinese ports) ..	—	175	56	677	616	—	1,524
From Gt. Britain ..	3,858	2,956	3,479	3,763	9,278	574	23,410
" Japan ..	546	3,123	885	810	2,060	195	7,071
" Other countries ..	—	990	750	—	1,320	1,865	4,925
Total (from foreign countries) ..	3,904	7,071	5,064	4,075	12,658	2,084	85,406
Grand Total ..	3,904	7,246	5,120	4,752	13,274	2,634	86,980

## EXPORTS

	January (in piculs)	February	March	April	May	June	Total
1. Cotton, Raw							
To Wuhu ..	900	100	100	500	700	200	2,500
" Kiaochoow ..	3,188	1,904	2,608	1,141	5,109	3,574	17,524
" Chefoo ..	—	—	—	91	—	—	91
" Tientsin ..	388	1,133	—	506	1,186	—	3,208
" Newchwang ..	—	—	—	37	62	2,047	2,146
" Dairen ..	56	778	—	13	—	—	884
" Weihaiwei ..	52	—	13	13	—	—	78
" Antung ..	—	—	—	—	351	1,104	1,455
" Ningpo ..	288	75	—	—	81	—	394
" Wenchow ..	12	—	—	—	—	—	12
Foochow ..	168	—	30	24	—	—	222
Swatow ..	292	18	197	180	571	397	1,655
" Amoy ..	398	—	20	54	20	36	528
" Canton ..	609	898	437	246	363	307	2,415
" Other ports ..	2,788	742	—	770	—	559	4,859
Total (to Chinese ports) ..	9,134	5,143	3,403	8,562	8,393	8,284	37,921
*To U S A. ..	11,792	5,035	8,392	1,323	2,165	8,575	37,282
" Gt. Britain ..	—	650	1,624	455	14	101	2,844
" Japan ..	44,347	41,197	23,196	7,321	11,980	16,892	144,983
" India ..	218	—	—	—	—	—	218
" Other c'tries ..	8,121	1,898	3,432	1,369	1,196	108	16,124
Total (to foreign countries) ..	64,478	48,780	86,644	10,468	15,855	25,676	201,401
To Hongkong ..	54	60	48	24	—	—	186
Grand Total ..	78,666	53,983	40,097	14,054	28,748	83,960	239,308
2. Cotton, Waste	(in piculs)						
To Wuhu ..	15	—	—	18	—	—	38
" Hankow ..	982	942	686	2,534	1,493	242	6,849
" Kiaochoow ..	—	—	—	—	48	15	58
" Chefoo ..	—	—	37	192	25	—	254
" Tientsin ..	—	—	—	10	—	—	10
" Newchwang ..	—	—	—	381	141	112	687
" Dairen ..	78	—	23	25	68	26	217
" Antung ..	—	—	—	25	—	12	87
" Ningpo ..	28	24	—	44	—	28	119
" Wenchow ..	327	367	216	162	186	312	1,570
" Foochow ..	128	18	—	12	—	—	153
" Amoy ..	112	—	60	—	48	30	250
" Canton ..	2,189	784	159	298	580	997	4,061
" Other ports ..	—	101	—	170	165	294	730
Total (to Chinese ports) ..	3,794	2,286	1,188	3,886	2,711	2,068	15,878
To U.S.A. ..	2,028	4,091	8,441	4,327	2,215	1,419	17,521
" Gt. Britain ..	1,225	728	1,218	1,529	1,726	1,362	7,788
" Japan ..	9,447	7,517	10,010	8,065	10,770	15,921	61,730
" Other c'tries ..	5,973	6,876	7,041	8,255	8,101	9,246	44,992
Total (to foreign countries) ..	18,678	18,712	21,710	22,176	22,812	27,948	182,081
To Hongkong ..	438	99	12	84	—	51	926
Grand Total ..	22,900	21,047	22,905	26,096	25,523	30,067	148,588

## EXPORTS—Continued

	January	February	March	April	May	June	Total
<b>3. Cotton, Fly (in piculs)</b>							
To Wuhu ..	17	—	—	—	—	—	17
,, Hankow ..	—	—	—	286	—	—	286
,, Chefoo ..	86	—	12	222	25	199	544
,, Kiaochow ..	23	—	—	—	—	—	23
,, Tientsin ..	—	—	—	—	—	88	88
,, Newchwang ..	—	—	—	439	292	1,380	2,111
,, Dairen ..	206	—	—	24	72	27	329
,, Antung ..	—	—	—	—	25	248	273
,, Ningpo ..	80	12	85	12	7	44	190
,, Wenchow ..	40	—	276	227	201	270	1,014
,, Foochow ..	18	16	—	12	247	—	288
,, Swatow ..	90	—	—	—	—	—	90
,, Amoy ..	86	—	30	—	—	68	184
,, Canton ..	603	—	272	351	472	1,136	2,886
,, Other ports ..	56	—	—	30	—	—	86
Total (to Chinese ports) ..	1,254	28	675	1,603	1,341	3,410	8,311
To Gt Britain ..	—	596	—	—	—	—	596
,, Japan ..	—	39	—	—	240	848	1,127
,, Other c'tries ..	—	—	—	—	501	—	501
Total (to foreign countries) ..	—	635	—	—	741	848	2,224
To Hongkong ..	—	29	—	—	—	—	29
<b>Grand Total ..</b>	<b>1,254</b>	<b>692</b>	<b>675</b>	<b>1,608</b>	<b>2,082</b>	<b>4,238</b>	<b>10,564</b>
<b>4. Cotton Yarn (in piculs)</b>							
To Nangking ..	15	—	—	—	—	—	15
,, Wuhu ..	280	109	—	94	123	288	844
,, Kiukiang ..	571	—	48	498	1,536	126	2,774
,, Hankow ..	2,284	529	16	1,155	2,431	1,141	7,551
,, Ichang and Chungking ..	—	—	—	579	—	62	641
,, Kiaochow ..	—	15	82	2,231	4,494	2,032	8,874
,, Chefoo ..	78	31	205	981	2,008	611	8,974
,, Tientsin ..	347	2,806	8,165	12,073	5,322	5,148	28,863
,, Newchwang ..	—	—	3,716	3,372	7,424	4,402	19,004
,, Dairen ..	1,427	998	937	—	—	—	3,362
,, Weihaiwei ..	62	—	297	810	1,129	733	3,051
,, Antung ..	—	—	—	111	175	32	318
,, Ningpo ..	329	879	506	888	370	195	2,677
,, Wenchow ..	866	78	189	113	616	229	2,093
,, Foochow ..	499	—	611	1,683	1,208	964	4,915
,, Swatow ..	582	1,027	2,888	622	2,463	5,241	12,323
,, Amoy ..	135	1,109	811	169	598	1,124	3,961
,, Canton ..	2,116	2,227	1,312	3,985	979	7,888	18,507
,, Other ports ..	179	97	175	41	2,023	749	3,266
Total (to Chinese ports) ..	9,690	9,403	14,623	29,824	32,896	31,075	127,013
To Japan ..	—	184	—	—	—	—	134
,, Other c'tries ..	—	81	—	—	158	62	251
,, Hongkong ..	—	461	615	1,257	2,680	253	5,218
<b>Total ..</b>	<b>—</b>	<b>626</b>	<b>615</b>	<b>1,257</b>	<b>2,788</b>	<b>317</b>	<b>5,603</b>
<b>Grand Total ..</b>	<b>9,690</b>	<b>10,031</b>	<b>15,238</b>	<b>80,581</b>	<b>83,684</b>	<b>31,892</b>	<b>182,616</b>

## EXPORTS—Continued

	January	February	March	April	May	June	Total
5. Cotton Yarn, Shanghai (in piculs)							
To Chungkiang ..	49	—	8	25	24	—	101
„ Nanking ..	220	—	—	63	79	—	362
„ Wuhu ..	5,649	1,480	6,770	12,514	8,668	5,523	40,556
„ Kiukiang ..	20,867	3,272	28,849	29,628	26,950	11,490	118,063
„ Hankow ..	72,249	21,291	24,412	52,076	52,476	28,582	251,986
„ Ichang and Chungking ..	1,793	156	—	26,653	3,702	11,023	48,331
„ Kiao-chow ..	1,637	338	566	20,159	21,032	7,363	51,115
„ Chefoo ..	491	406	982	5,973	5,868	2,079	15,799
„ Tientsin ..	4,196	702	10,851	27,374	14,889	16,856	74,368
„ Newchwang ..	—	—	3,508	3,848	26,463	17,999	53,818
„ Dairen ..	8,395	2,011	1,786	—	1,268	238	8,098
„ Weihaiwei ..	762	46	94	997	3,843	1,800	7,542
„ Antung ..	—	—	—	48	62	79	189
„ Ningpo ..	2,063	390	1,162	1,063	1,561	1,508	7,807
„ Wenchow ..	302	837	713	326	369	911	3,550
„ Foochow ..	8,412	1,042	1,657	1,496	1,957	1,721	11,285
„ Swatow ..	8,028	2,740	4,011	6,687	11,817	7,511	40,248
„ Amoy ..	2,216	829	1,029	1,532	1,153	1,174	7,053
„ Canton ..	4,474	998	1,870	18,061	4,005	8,071	32,477
„ Other ports ..	954	95	3,900	4,228	7,291	5,672	22,140
Total (to Chinese ports) ..	132,844	38,587	87,163	210,624	193,006	120,664	791,890
To U.S.A. ..	—	—	—	63	—	—	65
„ Hongkong ..	1,337	930	427	7,155	1,390	1,866	13,314
„ Other countries ..	—	166	221	316	—	79	782
Total ..	1,337	1,105	648	7,536	1,590	1,945	14,161
Grand Total ..	134,181	39,692	87,818	218,160	194,596	181,609	806,051
6. Cotton Yarn, Waste (in piculs)							
To U.S.A. ..	2,783	584	—	2,807	1,291	464	7,920
„ Gt. Britain ..	2,100	3,820	2,490	1,836	3,473	536	13,737
„ Japan ..	238	166	304	22	—	—	810
„ Other foreign countries ..	—	337	417	196	1,103	84	2,130
Total ..	5,141	4,907	3,271	4,301	5,871	1,084	24,635
7. Cotton Yarn, Mercerised (in piculs)							
To Wuhu ..	—	—	—	—	5	4	9
„ Kiukiang ..	—	—	8	—	—	—	8
„ Hankow ..	—	—	—	3	3	6	12
„ Ichang and Chungking ..	—	—	—	—	6	—	6
„ Kiao-chow ..	—	—	—	—	3	—	3
„ Chefoo ..	—	—	—	6	3	3	12
„ Tientsin ..	—	—	8	3	3	6	15
„ Wenchow ..	—	80	—	14	62	28	134
„ Foochow ..	—	6	9	12	23	20	70
„ Swatow ..	—	39	258	6	183	3	441
„ Canton ..	—	—	—	16	3	—	19
„ Other Chinese ports ..	—	—	—	—	19	—	19
Total ..	—	75	278	60	265	70	748

EXPORTS - *Continued*

	January	February	March	April	May	June	Total
8 Cotton Yarn, Dyed (in piculs)							
To Hankow ..	-	--	-	3	3	-	6
" Kaiochow ..	-	-	-	-	3	-	3
" Wenchow ..	-	-	-	-	3	-	3
" Foochow ..	-	8	-	25	12	-	45
Total ..	-	8	-	28	21	-	57
9 Cotton Thread, on spools (in Gross)							
To Hankow ..	-	30	-	80	240	120	420
" Ichang and Chungking ..	-	-	-	-	30	-	30
" Chetoo ..	-	-	-	-	50	50	100
" Tientsin ..	-	-	50	-	50	50	150
" Ningpo ..	-	700	50	150	600	200	1,700
" Other Chinese ports ..	-	30	-	-	120	80	180
Total ..	-	760	100	180	1,040	450	2,380

## THE HUNGARIAN TEXTILE INDUSTRY.

The Hungarian Minister of Commerce, in his address delivered before the National Assembly on July 11, made the following statement :

" The development of the textile industry commenced in 1920. At the beginning of that year Hungary possessed 69 textile factories and since then 55 new ones have been erected and are now fully working. Seventeen new undertakings are being built or are projected. In 1920 there existed 30,000 cotton spinning spindles and now there are over 53,000 working and a further 25,000 are being erected."

In the Minister's opinion, this means that by the end of 1923 the capacity of the industry has been trebled.

As regards cotton manufacture, at the commencement of 1920 there existed 3,870 looms, whilst to-day 5,920 are working and a further 120 are being erected.





# INTERNATIONAL COTTON STATISTICS

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## Mill Consumption and Mill Stocks.

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At the meeting of the International Committee, held April 23, 1923, it was decided that the International Cotton Statistics should be presented in tables showing the total consumption and mill stocks of each country instead of merely the actual returns received, as heretofore. This decision was arrived at because this census represents now over 90 per cent. of the spindles of the world and it was felt that the remaining spindles, for which no returns had been received, could be correctly ascertained by calculation. The present issue therefore, contains for the first time the calculation of 100 per cent. of the consumption and mill stocks and for the purpose of facilitating comparison, the 100 per cent. figures for the previous cotton season are also given.

No returns have been received from Germany and Brazil. For Germany the figures for the last half-yearly census have been used, less 25 per cent. for consumption and mill stocks, due to the economic conditions obtaining in that country during the last half year.

THE CONSUMPTION TABLE (pp. 58-59) shows that the world's consumption of American cotton during the second half year of the cotton season ended July 31, 1923, has been 614,000 bales less than in the first half year and this falling-off is entirely due to Europe.

*Great Britain* has used over a quarter of a million bales less of American cotton during the second half year than during the first and her consumption of this cotton during the last season is below 2,000,000 bales, or a third of U.S.A.'s consumption, in spite of the latter country having only a little more than half the number of spindles of Great Britain. France, Germany and Italy together consume more American cotton than Great Britain, and Great Britain's consumption of all kinds of cotton represents barely more than one-third of Europe's total consumption. In 1913, Great Britain consumed 3,500,000 bales of American cotton.

*France* is the only important country in Europe which has increased cotton consumption during the second half year as against the first. In Asia, *India* and *China* have consumed less, *Japan* a trifle more; in America, the *U.S.A.* have added to their consumption figure.

The total world's consumption of *all* kinds of cotton for the second half of the season is nearly 700,000 bales less than in the first, though for the

1922-23 season the world's cotton industry has used 22,076,000 bales against 21,162,000 bales in the 1921-22 season, due to the heavier consumption during the first half year of 1922-23 season.

It is worth noting that Egyptian is the only variety of cotton which shows a substantial increase of consumption during this half year; it will be seen that the consumption has steadily increased during the last four half years.

*U.S.A.* The Bureau of the Census, Washington, D.C., supplies these figures specially for us. It must be noted that the figures of foreign cotton generally published by the Bureau are in equivalent bales of 500 lbs, but in our tables of consumption and stocks of U.S.A. they are given in running or actual bales, i.e. in the case of Egyptian cotton bales of about 750 lbs.

THE STOCK TABLE (pp. 60-61) shows a most decided falling-off in stocks held by the mills of American cotton. This shortage of mill stocks accounts to a great extent for the abnormal demand that has sprung up during the last few weeks for American cotton to be delivered in the early months.—There is a shrinkage in all the different kinds of cotton stocks, except Egyptian. The reduction in the world's stocks on August 1, 1923, was 600,000 bales as against August 1, 1922.

Col. Hester of the New Orleans Cotton Exchange, estimated European mill stocks of American cotton to be 520,000 bales, whilst our tabulation shows 494,000 bales.

THE SHORT TIME TABLE (p. 64) shows increases in stoppages in Great Britain, Italy, Spain, Austria, Denmark, Mexico and China. Great Britain's stoppage is equal to a suspension of the entire industry in the country for  $7\frac{3}{4}$  weeks out of the 26 weeks under consideration or represents nearly 30 per cent. for all the spindles (American and Egyptian).

As regards the U.S.A., it is difficult to assess the curtailment of production, as the working hours differ considerably in the various States; an average of 5 per cent. over the whole country for the half year would seem to be a fair estimate. Very little short time is at present being worked in the U.S.A.

THE SPINDLE TABLE (pp. 62-63) does not necessitate any further explanation, except to state again that doubling and waste spindles are not included.

It is reported from Japan that 900,000 spindles have been devastated by the earthquake. This would mean that about 150,000 bales of American cotton will be set free for use in other countries.

The Table of the Consumption and Stocks of OUTSIDE GROWTHS (p. 65) of cotton is instructive as it shows the increasing favour of African, Brazilian and other cottons.

MANCHESTER,  
15th September, 1923.

ARNO S. PEARSE,  
General Secretary.

## Tableaux Statistiques Internationaux du Coton.

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### Consommation des Filatures de Coton et leurs Stocks pour l'année finissant le 31 juillet 1923.

A la réunion du Comité qui eut lieu le 23 avril 1923, il a été décidé que les Statistiques Internationales du Coton seraient présentées sous forme de tableaux indiquant la consommation totale, ainsi que les Stocks des Filatures de chaque pays, au lieu du total des relevés effectifs reçus comme par le passé. Cette décision a été prise parce que le Recensement représente à présent 90 pour cent des Broches du monde et on a estimé que le restant des Broches, pour lesquelles il n'a été reçu aucun relevé, pourrait être correctement déterminé par des calculs. La présente publication contient donc dès lors, pour la première fois, le calcul de 100 pour cent de la consommation et des Stocks en filatures, et dans un but de comparaison, nous fournissons également des chiffres à l'appui des 100 pour cent pour la dernière saison cotonnière.

Aucun relevé n'a été reçu ni d'Allemagne ni du Brésil. En ce qui concerne l'Allemagne, nous nous sommes servis des chiffres du dernier recensement semestriel, moins 25 pour cent pour la consommation et les Stocks des filatures, résultat causé par les conditions économiques régnant dans ce pays au cours du dernier semestre.

LE TABLEAU DE CONSUMMATION indique que la consommation mondiale du coton américain pendant les six derniers mois de la saison cotonnière finissant le 31 juillet 1923 a été 600,000 balles de coton de moins que pendant les six premiers mois de l'année, et cette baisse est due entièrement à l'Europe.

*La Grande-Bretagne* a fait, pendant le deuxième semestre, une consommation de coton américain inférieure d'un quart de million de balles en comparaison du premier semestre, et sa consommation de ce coton pendant la dernière saison est de moins de deux millions de balles, ou un tiers de la consommation des États-Unis d'Amérique. Ceci en dépit du fait que ce dernier pays ne possède qu'un peu plus de la moitié du nombre de broches de la Grande-Bretagne. La France, l'Allemagne et l'Italie consomment ensemble plus de coton américain que la Grande-Bretagne et la consommation de toutes les sortes de coton représente à peine plus d'un tiers de la consommation totale de l'Europe. — En 1913 la Grande-Bretagne a consommé 3½ millions de balles de coton américain.

*La France* est le seul pays important de l'Europe qui ait augmenté sa consommation de coton pendant le second semestre, en comparaison du premier. En Asie, les *Indes* et la *Chine* en ont consommé moins,

le Japon un peu plus ; en Amérique, les États-Unis ont augmenté leur chiffre de consommation.

La consommation totale mondiale de toutes sortes de coton pour les six derniers mois de la saison atteint 700,000 balles de moins que pendant les six premiers, bien que pendant la saison 1923 l'industrie cotonnière mondiale ait utilisé 22,076,000 balles, en comparaison de 21,162,000 balles pendant la saison 1922, ce résultat étant dû à une consommation plus forte pendant les six premiers mois.

On notera que le coton égyptien est le seul qui montre une augmentation considérable dans la consommation pendant le semestre passé ; la consommation a augmenté graduellement chaque semestre pendant les deux années.

*Etats-Unis d'Amérique.* Le Bureau de Recensement de Washington, D.C., nous fournit ces chiffres. On notera que le Bureau de Recensement convertit généralement tous les cotons d'origine étrangère en balles équivalentes de 500 livres, mais dans nos tableaux ces balles sont données dans leurs poids originaux, c'est-à-dire dans le cas du coton égyptien à 750 lbs. environ.

LE TABLEAU DES STOCKS accuse une baisse très forte dans les stocks des filatures, concernant les réserves de coton américain. Cette insuffisance de stocks dans les filatures explique jusqu'à un certain point la demande extraordinaire en coton américain qui s'est produite au cours de ces dernières semaines, avec ordre de livraison dans les premiers mois. Il y a une diminution dans les stocks de coton de tous genres, excepté celui d'Égypte. La réduction des stocks mondiaux, le 1<sup>er</sup> août 1923, était de 600,000 balles, en comparaison du nombre de balles au 1<sup>er</sup> août 1922. Le Colonel Hester, de la Bourse aux Cotons de la Nouvelle Orléans, estime que les stocks des filatures européennes en coton américain sont de 520,000 balles, alors que nos calculs indiquent un chiffre de 494,000 balles.

LE TABLEAU DES HEURES RÉDUITES DE TRAVAIL indique des augmentations de chômage en Grande-Bretagne, en Italie, en Espagne, en Autriche, au Danemark, au Mexique et en Chine. Les chômagés en Grande-Bretagne sont équivalents à une suspension de l'industrie entière dans tout le pays pendant  $7\frac{3}{4}$  semaines sur les 26 semaines en considération, ce qui représente près de 30 pour cent pour le total des broches (Broches filant le coton américain et égyptien).

En ce qui concerne les États-Unis, il est difficile de fixer la diminution de la production, les heures de travail variant considérablement dans les différents États ; on pourrait l'estimer en moyenne à 5 pour cent pour tout le pays pendant les six mois passés. A l'heure actuelle, il y a très peu d'heures réduites de travail aux États-Unis d'Amérique.

LE TABLEAU DES BROCHES n'exige pas plus d'explications, mais nous répéterons que les broches de doublage et de déchets n'y sont pas comprises.

On nous informe du Japon que 900,000 broches ont été détruites par le tremblement de terre, ce qui signifie qu'environ 150,000 balles de coton américain seront probablement mises à la disposition d'autres pays.

## Baumwoll-Spinnerei-Verbrauch und -Vorrat für die Baumwoll-Saison 1922-23.

Die Versammlung des Internationalen Komitees beschloss in der Sitzung vom 23. April 1923, dass die Internationale Baumwoll-Statistik den Totalverbrauch und die Totalvorräte eines jeden Landes angeben sollte, anstatt wie früher nur die Summe der eingelaufenen Fragebogen. Dieser Beschluss wurde angenommen, weil unsere Fragebogen von mehr als 90% der Spinner der Welt beantwortet werden und man der Meinung war, dass die Zahl der fehlenden Spinnereien leicht durch Berechnung zu erhalten ist. Die vorliegenden Tabellen zeigen zum ersten Mal den vollen hundert-prozentigen Baumwollverbrauch und Vorrat; um den Vergleich zu ermöglichen sind die vorjährigen Tabellen nach gleicher Grundlage umgerechnet.

Deutschland und Brasilien haben die Fragebogen nicht beantwortet. Für Deutschland sind, in Folge der kritischen Lage dieses Landes, die Ziffern des vorhergehenden Halbjahres, abzüglich 25% für Verbrauch und Vorrat verwendet worden.

Die VERBRAUCHS-Tabelle zeigt, dass von amerikanischer Baumwolle 600,000 Ballen weniger im zweiten Semester der Saison 1922/23 (bis Ende Juli 1923) versponnen wurden, als in der ersten Hälfte und dass diese Verringerung im Welt-Verbrauch in Europa allein stattgefunden hat.

ENGLAND hat von amerikanischer Baumwolle im verflossenen Halbjahr 250,000 Ballen weniger versponnen als im ersten Semester der Saison und der Verbrauch während des ganzen Jahres ist nunmehr weniger als zwei Millionen Ballen, d.h. ein Drittel der Quantität, welche die Vereinigten Staaten verarbeiten und dies trotz der viel grösseren Spindelanzahl Englands. Frankreich, Deutschland und Italien zusammen verbrauchten mehr amerikanische Baumwolle als England und dieses Land verspinnt jetzt nur ein Drittel aller Baumwolle, welche nach Europa kommt. — In 1913 war Englands Konsum von amerikanischer Baumwolle allein  $3\frac{1}{2}$  Millionen Ballen.

FRANKREICH ist das einzige Land von Bedeutung in Europa, welches im zweiten Halbjahr der letzten Saison *mehr* Baumwolle verbraucht hat als im ersten. In Asien haben INDIEN und CHINA weniger verbraucht, JAPAN eine Kleinigkeit mehr. In Amerika haben die VEREINIGTEN STAATEN ihren Verbrauch erhöht.

Der Totalverbrauch von ALLEN Sorten Baumwolle stand in der zweiten Hälfte des Jahres nahezu 700,000 Ballen gegen das erste Semester zurück, obgleich die Industrie in allen Ländern im Jahre 1922, 23 22,076,000 Ballen von allen Sorten verbraucht hat, gegen 21,162,000 Ballen im Jahre 1921/22, was dem besseren Geschäftsgang in der ersten Hälfte der soeben verflossenen Saison zuzuschreiben ist.

Zu bemerken ist, dass allein von ägyptischer Baumwolle der Konsum im letzten Halbjahr beträchtlich gestiegen ist; dieses Anwachsen im Konsum ägyptischer Baumwolle ist in den vorhergehenden drei Halbjahren bereits ersichtlich.

**VEREINIGTE STAATEN VON NORD-AMERIKA.** Das Census Bureau in Washington unternimmt die Aufstellung der veröffentlichten Zahlen. Es muss beachtet werden, dass das Census Bureau gewöhnlich alle Baumwolle ausländischer Herkunft in Ballen von 500 lbs. umrechnet, aber in unseren Tabellen ist der Konsum und Vorrat dieser Sorten mit laufenden Ballen ausgedrückt, also in Ballen von c<sup>r</sup> 750 lbs. für ägyptische Baumwolle, etc.

Die VORRATS-TABELLE zeigt ein bedeutendes Fallen in den Spinnerei-Vorräten amerikanischer Baumwolle. Dieser Mangel an Baumwolle erklärt die anormale Nachfrage, welche in den letzten Wochen für greifbare amerikanische Baumwolle eingesetzt hat. In allen Baumwollsorten, mit Ausnahme von ägyptischer, ist eine Vorratsverminderung zu verzeichnen, die 600,000 Ballen gegen den 1. Aug. 1922 beträgt. Col. Hester von der New Orleans Baumwollbörsen schätzt die europäischen Baumwollbestände der Spinnereien mit 520,000 Ballen ab, während unsere Tabelle nur 494,000 Ballen aufweist.

Die BETRIEBSEINSCHRÄNKUNG zeigt eine Vergrößerung in England, Italien, Spanien, Oesterreich, Dänemark, Mexico und China. Die Verkürzung der Arbeitszeit in der englischen Industrie ist gleich einer Einstellung aller Spindeln (amerikanischer und ägyptischer) für 7½ Wochen, von den 26 Wochen des zweiten Halbjahres, oder fast 30 von Hundert.

In Bezug auf die Vereinigten Staaten ist es schwierig die Verkürzung abzuschätzen, weil die Arbeitszeit in den einzelnen Staaten so verschieden ist. 5% für die ganze Industrie ist vielleicht der Durchschnitt für das Halbjahr. Gegenwärtig werden die Betriebe wieder voll arbeiten.

Die SPINDELTABELLE erfordert keine weitere Erklärung; es muss nur wiederholt werden, dass Zwirn- und Abfallspindeln nicht einbegriffen sind.

JAPAN hat durch das Erdbeben 900,000 Spindeln verloren, wodurch ungefähr 150,000 Ballen amerikanischer Baumwolle für den Konsum anderer Länder frei werden sollten.

Die Tabelle der neueren Bezugsquellen ("OUTSIDE-SOURCES") ist interessant, in sofern als sie den steigenden Gebrauch afrikanischer, brasilianischer und anderer Sorten zeigt.!

**Calculated TOTAL WORLD'S COTTON MILL  
and 1922 on basis of Spinners' returns made**

IN THOUSANDS OF ACTUAL BALES  
(regardless of weight)

COUNTRIES	AMERICAN				EAST INDIAN			
	Half year ending				Half year ending			
	Jan 31 1923	July 31 1923	Jan 31 1922	July 31 1922	Jan 31 1923	July 31 1923	Jan 31 1922	July 31 1922
<b>EUROPE</b>								
(1) Great Britain ..	1,096	828	1,107	1,168	39	68	27	27
(2) France ..	400	390	319	450	71	96	41	78
(3) Germany ..	418	386	412	469	126	94	109	110
(4) Russia ..	61	61	3	24	—	—	—	—
(5) Italy ..	827	274	264	309	108	131	101	99
(6) Czecho-Slovakia ..	91	87	107	142	20	41	27	28
(7) Spain ..	155	94	114	180	37	28	16	30
(8) Belgium ..	67	62	67	60	59	68	51	40
(9) Switzerland ..	31	26	26	29	3	4	3	3
(10) Poland ..	98	74	82	88	20	24	18	19
(11) Austria ..	34	27	43	41	18	23	13	12
(12) Holland ..	13	38	13	48	12	13	12	12
(13) Sweden ..	42	36	37	37	2	2	1	1
(14) Portugal ..	21	25	16	21	—	—	—	—
(15) Finland ..	16	16	18	13	—	—	—	—
(16) Denmark ..	13	11	10	8	—	1	—	—
(17) Norway ..	4	8	3	4	—	—	—	—
Europe Total ..	2,944	2,388	2,793	3,097	518	593	419	463
<b>ASIA</b>								
(1) India ..	21	5	35	19	1,182	1,015	1,105	1,102
(2) Japan ..	393	330	363	431	843	877	695	783
(3) China ..	78	37	86	95	171	186	132	214
Asia Total ..	487	372	486	543	2,198	2,078	1,932	2,101
<b>AMERICA</b>								
(1) U.S.A. ..	8,125	8,198	2,855	2,760	8	13	6	5
(2) Canada ..	92	88	73	83	—	—	—	—
(3) Mexico ..	11	9	39	11	—	—	—	—
(4) Brazil ..	—	—	—	—	—	—	—	—
America Total ..	8,228	8,290	2,907	2,834	8	13	6	5
Sundries ..	3	8	—	10	—	1	—	—
HALF YEAR TOTALS ..	6,662	6,048	6,246	6,506	2,724	2,685	2,337	2,560
Grand Total ..	12,710		12,732		5,409		4,926	
Cotton Season ..	1923		1922		1923		1922	

## CONSUMPTION for the Cotton Seasons 1923 to the International Cotton Federation

IN THOUSANDS OF ACTUAL BALES  
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL			
Half year ending				Half year ending				Half year ending			
Jan 31 1923	July 31 1923	Jan 31 1922	July 31 1922	Jan 31 1923	July 31 1923	Jan 31 1922	July 31 1922	Jan 31 1923	July 31 1923	Jan 31 1922	July 31 1922
184	209	168	168	187	164	71	125	1,506	1,264	1,376	1,188
46	47	29	43	31	95	15	25	551	628	434	601
21	16	21	20	12	9	11	10	607	455	583	600
1	1	3	1	234	151	366	229	296	218	372	237
20	24	8	14	5	4	2	3	460	433	375	125
2	6	5	4	3	4	2	1	116	188	201	173
16	17	1	15	2	2	3	—	210	141	187	225
2	2	2	2	5	7	2	1	133	139	122	121
14	16	13	13	—	1	1	—	48	47	13	45
4	3	1	3	8	2	2	7	125	103	108	117
1	2	1	1	—	1	1	—	53	53	60	54
—	—	—	—	—	1	—	—	55	52	55	55
1	1	—	—	—	—	—	—	45	39	38	38
1	2	1	1	13	24	10	11	35	51	36	33
—	—	—	—	—	—	—	—	16	16	18	15
—	—	—	—	1	—	—	—	16	12	10	8
—	—	—	—	—	—	—	4	3	3	4	4
318	346	256	290	501	465	498	418	1,276	3,787	3,906	4,268
4	1	3	7	9	15	20	23	1,216	1,036	1,163	1,131
14	17	12	14	31	69	40	30	1,283	1,293	1,112	1,200
3	1	1	1	028	515	117	450	870	739	636	760
21	19	16	22	663	599	477	503	3,369	3,068	2,911	3,171
77	103	82	74	47	51	60	51	3,237	3,265	3,003	2,893
—	2	1	—	—	—	—	—	92	85	74	83
—	—	—	—	62	54	25	37	73	63	61	68
—	—	—	—	275	280	227	250	275	280	227	250
77	105	83	74	384	385	312	361	3,607	3,793	3,808	3,204
7	8	7	—	32	32	21	146	42	44	28	136
418	478	302	386	1,580	1,481	1,808	1,428	11,884	10,692	10,273	10,889
896	748	—	—	8,061	—	2,736	—	22,076	—	21,162	—
1923	1922	—	—	1923	—	1922	—	1923	—	1922	—

**Calculated TOTAL WORLD'S COTTON MILL  
on basis of spinners' returns made to**

COUNTRIES		IN THOUSANDS OF ACTUAL BALES (regardless of weight)							
		AMERICAN				EAST INDIAN			
		Half year ending		Half year ending		Jan. 31 1923		July 31 1923	
		Jan. 31	July 31	Jan. 31	July 31	Jan. 31	July 31	Jan. 31	July 31
		1923	1923	1922	1922	1923	1923	1922	1922
	EUROPE :—								
(1)	Great Britain ..	152	104	200	188	14	29	8	14
(2)	France ..	116	88	100	124	30	50	20	49
(3)	Germany ..	73	54	143	130	33	24	43	53
(4)	Russia ..	13	26	3	18	—	—	—	—
(5)	Italy ..	120	90	120	119	45	57	32	50
(6)	Czecho-Slovakia ..	25	18	40	42	6	10	11	10
(7)	Spain ..	27	32	15	118	4	3	1	16
(8)	Belgium ..	27	17	26	21	10	28	26	22
(9)	Switzerland ..	14	11	21	14	2	3	2	2
(10)	Poland ..	14	12	9	14	6	6	8	9
(11)	Austria ..	10	7	11	14	5	11	6	6
(12)	Holland ..	15	10	10	16	4	8	6	10
(13)	Sweden ..	14	11	18	11	1	2	1	1
(14)	Portugal ..	5	6	4	6	—	—	—	—
(15)	Finland ..	6	2	3	4	—	—	—	—
(16)	Denmark ..	3	3	1	3	—	—	—	—
(17)	Norway ..	1	1	1	1	—	—	—	—
	Europe Total ..	637	492	740	838	169	231	184	242
	ASIA :—								
(1)	India ..	14	5	21	19	595	717	764	882
(2)	Japan ..	167	160	316	307	378	570	459	363
(3)	China ..	25	20	38	55	61	88	48	110
	Asia Total ..	206	185	390	381	1,037	1,875	1,271	1,557
	AMERICA :—								
(1)	U.S.A. ..	1,908	977	1,592	1,124	3	9	4	6
(2)	Canada ..	46	24	36	27	—	—	—	—
(3)	Mexico ..	4	8	10	4	—	—	—	—
(4)	Brazil ..	—	—	—	—	—	—	—	—
	America Total	1,958	1,009	1,688	1,133	8	9	4	6
	Sundries ..	8	8	—	1	—	—	—	—
	HALF YEAR TOTALS ..	2,804	1,689	2,768	2,873	1,209	1,615	1,459	1,805

**STOCK for the Cotton Seasons 1923 and 1922**  
**the International Cotton Federation**

IN THOUSANDS OF ACTUAL BALES  
 (regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL			
Half year ending				Half year ending				Half year ending			
Jan. 31 1923	July 31 1923	Jan. 31 1922	July 31 1922	Jan. 31 1923	July 31 1923	Jan. 31 1922	July 31 1922	Jan. 31 1923	July 31 1923	Jan. 31 1922	July 31 1922
68	69	60	71	40	85	86	43	289	287	304	311
26	23	16	23	17	11	7	17	189	172	152	218
8	6	10	8	6	5	5	5	122	89	201	196
1	5	2	1	70	42	70	198	84	73	75	212
12	12	7	8	2	2	2	2	170	161	187	179
1	2	8	2	1	1	1	2	33	31	55	56
8	1	2	10	—	1	—	2	30	37	18	146
1	1	1	1	1	3	1	1	48	49	54	45
11	11	10	10	1	1	1	1	28	26	34	27
1	2	1	2	1	1	1	8	22	21	19	28
—	1	1	1	1	—	—	—	16	19	18	21
—	—	—	—	—	—	—	—	19	18	16	26
—	1	—	—	—	—	—	—	15	14	10	12
—	—	—	—	4	6	6	8	9	12	10	9
—	—	—	—	—	—	—	—	6	2	3	4
—	—	—	—	—	—	—	—	3	3	1	3
—	—	—	—	—	—	—	—	1	1	1	1
132	134	113	137	141	108	130	272	1,082	965	1,167	1,480
4	1	7	11	2	10	26	18	615	733	818	930
22	21	18	19	35	30	13	13	602	781	806	904
—	—	2	1	267	103	217	149	356	211	320	813
26	22	27	31	304	143	236	180	1,573	1,725	1,944	2,140
43	60	44	43	23	24	31	34	1,077	1,070	1,671	1,207
—	1	1	—	—	—	—	—	46	25	37	27
—	1	—	—	40	22	24	32	44	31	34	36
—	—	—	—	105	25	136	146	105	25	156	146
43	62	45	48	168	71	211	212	2,172	1,151	1,898	1,416
3	8	9	—	18	25	5	18	24	81	14	14
204	221	194	211	634	347	602	677	4,831	3,872	5,023	5,068

**Calculated Total World's COTTON SPINNING SPINDLES for the half-year ending 31st July, 1923,  
on basis of returns made to the International Cotton Federation's Statistics.**

	COUNTRIES	Total World estimated number of spinning spindles	Spindles spinning Egyptian Cotton		Spindles in Course of Construction as per Returns
			Mule Spindles	Rung Spindles	
<b>EUROPE:</b>					
Great Britain..	..	..	..	..	50,582,873
France ..	..	..	..	..	9,600,000
Germany ..	..	..	..	..	9,605,077
Russia (excluding Poland and Finland) ..	..	..	..	..	7,245,935
Italy ..	..	..	..	..	4,370,000
Czecho-Slovakia ..	..	..	..	..	3,508,444
Spain ..	..	..	..	..	1,812,785
Belgium ..	..	..	..	..	1,682,965
Switzerland ..	..	..	..	..	1,512,562
Poland ..	..	..	..	..	1,200,191
Austria ..	..	..	..	..	1,022,702
Holland ..	..	..	..	..	668,540
Sweden ..	..	..	..	..	566,381
Portugal ..	..	..	..	..	487,152
Finland ..	..	..	..	..	210,802
Denmark ..	..	..	..	..	97,081
Norway ..	..	..	..	..	65,804
Total ..	..	100,469,447	61,793,402	38,075,035	21,902,932
					425,035

Calculated Total World's COTTON SPINNING SPINDLES for the half-year ending 31st July, 1923  
on basis of returns made to the International Cotton Federation's Statistics.—Continued.

COUNTRIES	Total World estimated number of SPINNING spindles	Mule Spindles	Ring Spindles	Spindles spinning Egyptian Cotton as per Returns	Spindles in Course of Construction as per Returns
<b>ASIA :—</b>					
India ..	.. .. .. .. ..	7,381,210	1,153,099	6,177,520	8,807
Japan ..	.. .. .. .. ..	4,877,416	30,051	4,826,765	406,985
China ..	.. .. .. .. ..	2,680,000	—	2,080,000	—
	<b>Total ..</b>	<b>14,888,635</b>	<b>1,204,350</b>	<b>13,684,285</b>	<b>415,852</b>
<b>AMERICA :—</b>					
U.S. America..	.. .. .. .. ..	37,397,381	—	37,397,331	?
Canada ..	.. .. .. .. ..	1,076,084	463,781	612,308	57,433
Mexico ..	.. .. .. .. ..	770,000	5,432	764,568	22,634
Brazil ..	.. .. .. .. ..	1,700,000	—	1,700,000	—
	<b>Total ..</b>	<b>40,043,415</b>	<b>409,213</b>	<b>40,171,202</b>	<b>80,067</b>
SUNDRIES ..	.. .. .. .. ..	275,000	—	275,000	55,000
<b>GRAND TOTAL ..</b>	<b>.. .. .. .. ..</b>	<b>156,576,497</b>	<b>63,467,055</b>	<b>98,109,442</b>	<b>22,453,851</b>
					<b>6,561</b>
					<b>—</b>
					<b>1,866,756</b>

## SHORT-TIME TABULATION.

The extent of short-time reported equals the following stoppage of the total number of spindles from which returns have been received, and may be considered the extent of stoppage of the whole industry.

TABLE DE CHÔMAGE. Le chômage indiqué dans les questionnaires, calculé sur la totalité des broches qui ont répondu, montre une suspension de travail comme détaillé ci-après. Ces chiffres (exprimés en semaines de 48 heures) peuvent être considérés comme l'arrêt complet de l'industrie entière dans chaque pays.

BETRIESEINSCHRÄNKUNG. Die Betriebseinschränkung laut eingegangener Berichte, umgerechnet auf die sämtlichen antwortenden Spindeln, bedeutet eine Stillegung derselben laut untenstehender Tabelle. Diese Zahlen sind mehr oder weniger für die ganze Industrie eines jeden Landes anwendbar.

Number of weeks of 48 hours during which the total number of spindles, from which returns have been received, were stopped.

Nombre de semaines de 48 heures durant lesquelles le nombre total des broches qui ont répondu ont chômé.

Anzahl der Wochen von 48 Stunden, während welchen die Totalanzahl der berichtenden Spindeln geruht hat.

	HALF-YEAR ENDING				
	31st July, 1923	31st Jan. 1923	31st July, 1922†	31st Jan., 1922†	31st July, 1921†
Great Britain	7.778	5.757	4.539	6.087	12.92
France ..	2.210	1.498	1.147	2.876	6.92
Germany ..	not available	Not available	1.745	3.237	5.48
Italy..	4.423	1.916	1.407	4.353	3.11
Czecho-Slovakia	10.192	11.539	5.748	5.870	8.76
Spain ..	2.980	Nil	Nil	6.511	9.17
Belgium ..	2.640	3.062	4.322	7.712	12.94
Switzerland ..	1.628	2.220	3.113	2.538	3.39
Poland‡ ..	3.512	4.074	Nil	Nil	5.80
Austria ..	8.074	7.468	5.858	8.821	not available
Holland ..	.261	.401	.078	Nil	Nil
Sweden ..	1.709	3.435	4.941	7.184	7.50
Portugal ..	Nil	.020	Nil	1.024	8.41
Finland ..	.578	.867	.532	.419	.60
Denmark ..	2.709	1.124	9.411	6.082	15.12
Norway ..	6.596	6.690	5.819	6.720	11.57
Japan* ..	10.000*	10.188*	12.541*	16.521*	21.23*
Canada ..	.741	.081	.141	.414	1.56
Mexico ..	8.572	.165	Nil	1.427	.17
China ..	4.250	—	—	—	—

\* This figure represents working weeks of 48 hours. The general working week in Japan was 132 hours, until May of this year, when it was altered to a 120 hour week, calculated in Japanese working weeks the stoppage is equal to 4.003 weeks.

† These figures were published in the previous issues of the International Cotton Statistics.

‡ The overtime worked in some mills counterbalances the short-time of others.

## SPECIFICATION OF PART OF THE COTTON RETURNED AS "SUNDRIES" (IN ACTUAL BALES)

Country	Peru	CONSUMPTION						STOCKS					
		Africa	Brazil	Sea Islands, specified in returns	Others (not in returns)	Total	Peru	Africa	Brazil	Sea Islands, West Indies	Sea Islands, specified in returns	Others (not specified in returns)	Total
Great Britain	77,090	85,877	38,333	4,410	13,333*	168,732	12,192	5,840	4,985	9,681	2,461†	35,159	
France	382	861	7,108	535	86,400	95,296	66	678	2,042	1,233	7,453	11,472	
Italy	..	126	107	—	4,160	4,393	355	904	—	—	892	2,149	
Czecho-Slovakia	..	3	649	{ Austria other*	1,061	3,560	—	21	103	—	—	621	748
Belgium	..	3,001	348	—	3,454	6,804	—	1,420	50	—	—	1,014	3,114
Switzerland	..	96	161	—	381	724	—	35	209	—	—	267	511
Poland	..	..	129	—	685	{ Austria Chine other*	100	—	—	60	{ Chine Other*	173	583
Holland	..	..	82	198	488	—	748	67	11	61	—	—	139
Sweden	..	..	146	236	—	—	382	10	—	—	—	—	10
Portugal	..	..	—	—	18,500	—	5,300	23,800	—	5,830	—	—	5,830
U.S.A.	..	..	..	26,628	—	{ Chine Other*	22,611	50,862	83,400	—	{ Chine Other*	15,089	24,104
Mexico	..	..	..	—	—	{ Chine Other*	1,563	—	—	—	—	675	22,014
Finland	..	..	..	—	—	Weyuan	53,906	53,906	—	—	—	22,014	22,014
Austria	..	..	..	—	—	Chine	10	10	—	—	—	10	10
China	..	..	..	—	—	—	—	—	—	—	—	102,815	—
						other*	514,990	816	—	—	—	Other*, Others	122
						other*	291	515,281	—	—	—	—	102,937
									—	—	—	—	—
									20,958	8,358	11,244	10,914	154,306
													208,780
—	—	—	—	—	—	—	—	—	—	—	—	—	—

— Includes: Chinese, 804; Australian, 615; Turkish, 482; Columbian, 415; Ecuador, 315; Argentine, 128; Maltese, 106; Cyprus, 70; Haytii, 60; Persian, 54; Mesopotamian, 43; Smyrna, 24.

† Includes: Australian, 1190; Chinese, 302; Turkish, 70; Persian, 30; Argentine, 30; Smyrna, 11; Mesopotamian, 7; Haytian, 2.

The corresponding table for the previous half year appeared in the International Cotton Bulletin, No. 3, page 22.

## INTERNATIONAL COTTON BULLETIN

## VISIBLE SUPPLY (From "Cotton," Aug. 1st 1923)

The following statement (in thousands of bales) includes English, Continental, American, Egyptian, and East Indian Stocks and afloat on the given dates—

	1923 Aug. 3	1923 July 27	1922 Aug. 4	1921 Aug. 5	1914 Aug. 7
<b>American.</b>					
Stock — Liverpool, Manchester, etc	161	159	474	730	653
Continent ..	112	121	407	516	544
U.S. Ports ..	182	176	441	1,303	222
U.S. Interior ..	266	274	346	1,101	109
Afloat — Great Britain ..	9	11	68	72	21
Continent ..	109	95	134	284	45
TOTAL ..	835	866	1,870	4,015	1,594
<b>Egyptian.</b>					
Stock — Liverpool, Manchester, etc	89	109	94	75	83
Continent ..	10	9	12	13	2
Alexandria ..	136	147	220	264	101
Afloat — Great Britain ..	8	11	28	14	4
Continent ..	9	8	12	11	—
TOTAL ..	252	254	361	377	190
<b>East Indian.</b>					
Stock — Liverpool and Manchester ..	62	71	23	35	63
London ..	—	—	1	2	4
Continent ..	51	51	16	46	121
Bombay Harbour ..	2	17	15	2	6
Afloat — Great Britain ..	28	29	12	8	6
Continent ..	88	90	69	45	155
TOTAL ..	281	252	186	158	335
<b>Sundries.</b>					
Stock — Great Britain ..	119	115	229	286	137
Continent ..	18	15	19	19	20
Afloat — Great Britain ..	30	30	32	24	21
Continent ..	4	6	10	4	—
TOTAL ..	166	166	310	333	178
<b>GRAND TOTAL ..</b>	<b>1,487</b>	<b>1,568</b>	<b>2,877</b>	<b>4,878</b>	<b>2,317</b>

\*Bombay on shore not included ..

## STOCKS.

	1928 THIS WEEK	1922
<b>Liverpool : Aug. 2.</b>		
AMERICAN ..	189,170	426,370
BRAZILIAN ..	30,940	72,710
EGYPTIAN ..	72,130	82,210
SOUDAN ..	13,490	—
PERUVIAN ..	49,940	108,170
WEST INDIAN, ETC..	9,180	6,570
AFRICAN ..	13,910	39,540
AUSTRALIAN ..	1,040	—
EAST INDIAN, ETC. ..	60,960	19,610
TOTAL ..	390,760	755,380
<b>Manchester :</b>		
AMERICAN ..	21,456	42,155
EGYPTIAN ..	17,818	19,819
EAST INDIAN, ETC. ..	960	8,282
<b>London ..</b>	<b>1,000</b>	<b>8,240</b>
<b>United States : Aug. 3.</b>		
AT THE PORTS ..	182,000	441,000
INTERIOR TOWNS (42) ..	266,000	346,000
NEW YORK ..	85,000	135,000
NEW ORLEANS ..	47,000	78,000

## EGYPTIAN STATISTICS (In Bales).

Aug. 1 —	This Week	Since 1st Aug. 1923	Same Time 1922-23	Same Time 1921-22
Receipts in Alexandria* ..	12	12	1,600	6,000
Shipments — Manchester ..	1,730	1,750	4,000	500
" Liverpool ..	600	600	2,250	6,250
" Other U.K. ports ..	—	—	—	—
" Continent, India and Japan ..	4,750	4,750	1,000	1,750
" America ..	—	—	200	1,500
" All parts ..	7,100	7,100	7,450	10,000
Stock in Alexandria* ..	124,400	—	216,182	268,866

\*Each bale represents 7½ (approx.) (A cental = 99lb.)

## TOTAL WORLD

Date	Total Estimated Number of Spindles existing in world	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)			SUNDRIES	TOTAL	Spindle Percentage of Returns received on which estimate is based	Per 1,000 Spindles, Total all Linds. of Cotton. Bales
		AMERICAN	EAST INDIAN	EGYPTIAN				
Feb. 1, 1923	155,981,876	2,804	1,200	204	694	4,851	86.41	32.00
" 1922	156,057,680	2,768	1,459	194	602	5,028	87.02	32.69
" 1921	151,658,854	2,274	1,4830	204	683	4,541	85.86	29.91
" 1920	—	Not available.	—	—	—	—	—	—
Mar. 1, 1924	144,704,012	3,252	1,140	819	617	5,328	91.26	36.82
" 1918	142,186,808	3,667	681	278	723	5,351	88.66	37.63
Aug. 1, 1923	156,570,497	1,689	1,015	221	317	3,872	90.62	24.73
" 1922	154,555,967	2,875	1,805	211	677	5,068	86.17	32.79
" 1921	152,817,054	2,164	1,752	177	395	4,486	84.99	29.46
" 1920	—	Not available.	—	—	—	—	—	—
Sept. 1, 1923	143,452,659	1,788	1,850	272	511	3,921	91.68	27.87
" 1912	140,986,108	2,260	1,163	189	674	4,295	90.08	29.08
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)								
Half-year ending								
July 31, 1923	156,576,497	6,048	2,685	478	1,481	10,692	90.62	66.21
Jan. 31, 1923	155,981,876	6,662	2,724	418	1,580	11,381	86.41	72.91
July 31, 1922	154,555,267	6,508	2,569	886	1,428	10,889	86.17	70.52
Jan. 31, 1922	153,657,680	6,246	2,357	362	1,308	10,273	87.02	66.86
July 31, 1921	152,317,054	4,868	2,240	220	1,065	8,393	84.99	55.10
Jan. 31, 1921	151,658,854	5,156	2,320	296	1,181	9,262	85.36	61.07
Year ending								
Aug. 31, 1923	148,452,659	15,168	8,787	1,014	2,458	22,422	91.68	156.30
" 1912	140,986,108	15,494	8,460	779	2,262	22,015	90.08	156.48

## GREAT BRITAIN

Date	Total Estimated Number of Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)			SUPPLY			Spindle Percent of Returns received on which estimate is based	Per 1,000 Spindles.	Total all kinds of Cotton. Bales
		AMERICAN	EAST INDIAN	EGYPTIAN	SUNDRIES		TOTAL			
Feb. 1, 1923	56,013,329	152	14	68	40	269	88.51	4.75		
" 1922	56,420,078	200	8	60	36	304	90.68	5.39		
" 1921	56,351,570	241	18	70	19	348	91.18	6.18		
" 1920	57,332,728	298	18	164	33	508	89.72	8.86		
Mar. 1, 1914	55,971,501	814	14	140	46	514	90.35	9.19		
" 1913	55,576,108	376	10	146	38	570	86.78	10.25		
Aug. 1, 1923	56,582,878	104	29	69	35	287	89.83	4.19		
" 1922	56,605,176	183	14	71	43	311	88.57	5.97		
" 1921	56,140,738	280	14	64	27	335	88.60	7.69		
" 1920	58,692,410	298	12	111	34	450	85.27	6.82		
Sept. 1, 1913	55,652,820	284	16	91	39	380	89.49	7.40		
" 1912	55,317,083	279	12	84	34	409	88.10	4.27		
CONSUMPTION—In thousands of ACTUAL BALES (000's, omitted)										
Half-year ending										
July 31, 1923	56,582,873	823	68	209	164	1,264	89.83	22.34		
Jan. 31, 1923	56,613,329	1,096	89	184	187	1,506	88.51	26.58		
July 31, 1922	56,605,176	1,168	27	168	125	1,488	88.57	26.31		
Jan. 31, 1922	56,420,078	1,107	27	168	74	1,376	90.68	24.88		
July 31, 1921	56,140,738	587	16	85	24	712	88.60	12.67		
Jan. 31, 1921	56,351,570	1,091	28	152	46	1,812	91.18	23.30		
Year ending										
July 31, 1920	58,692,410	8,074	60	456	146	3,786	85.27	68.65		
Aug. 31, 1919	55,652,320	8,667	53	393	161	4,274	89.49	76.80		
" 1912	55,317,083	8,784	45	—	120	4,278	88.10	77.27		

**F R A N C E**

Date	Total Estimated Number of Spindles engaged in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted) "INVISIBLE" SUPPLY			Spindle Percentage of Returns received on which estimate is based	Per 1,000 Spindles. Total, all kinds of Cotton. Bales
		AMERICAN	EAST INDIAN	EGYPTIAN	SUNDRIES	
Feb. 1, 1923	9,800,000	116	26	17	189	70.24
" 1922	9,600,000	109	20	7	152	70.71
" 1921	9,800,000	120	24	9	168	79.43
" 1920	9,400,000	104	—	29	—	57.07
Mar. 1, 1914	7,400,000	182	44	40	167	30.91
" 1913	7,400,000	131	26	34	228	27.66
					205	97.39
						22.27
Aug. 1, 1923	9,600,000	88	50	28	11	172
" 1922	9,600,000	124	49	23	17	213
" 1921	9,600,000	74	18	18	7	112
" 1920	9,400,000	147	40	38	18	243
Sept. 1, 1913	7,400,000	90	48	21	9	168
" 1912	7,400,000	92	38	20	9	159
						96.58
						19.63
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)						
Half-year ending						
July 31, 1923	9,600,000	390	96	47	95	628
Jan. 31, 1923	9,600,000	400	74	46	31	551
July 31, 1922	9,600,000	450	78	45	28	601
Jan. 31, 1922	9,600,000	340	41	29	15	434
July 31, 1921	9,600,000	269	85	17	9	380
Jan. 31, 1921	9,600,000	314	84	25	22	395
Year ending						
July 31, 1920	9,400,000	854	73	89	30	1,046
Aug. 31, 1919	7,400,000	806	95	80	29	1,010
" 1912	7,400,000	832	85	76	—	1,021

# GERMANY

## ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted) "INVISIBLE" SUPPLY

Date	Total Estimated Number of Spindles <sup>a</sup> in country	AMERICAN	LAASI INDIAN	EGYPTIAN	SUNDRIES	TOTAL	Sign. In Imports & R. trans. on which Customs are paid	Per 1,000 Spindles	Total all kinds of Cotton Bales
Feb. 1, 1923	9,500,000	75	33	5	6	122	90 74	12 b4	
" 1922	9,400,000	143	43	5	5	201	91 79	21 16	
" 1921	9,400,000	125	51	6	12	194	97 35	20 65	
" 1920	—	Not available	—	—	—	—	—	—	
Mar. 1, 1924	11,404,944	261	91	38	18	411	97 88	35 98	
" 1913	10,920,426	270	48	38	21	377	98 11	34 51	
Aug. 1, 1923	9,605,077	14	24	6	5	99	99	9 26	
" 1922	9,500,000	130	53	8	5	196	89 79	20 65	
" 1921	9,400,000	130	51	6	3	190	92 48	20 28	
" 1920	9,400,000	65	32	4	22	123	52 65	28 50	
Sept. 1, 1923	11,156,023	103	81	27	15	289	86 53	25 25	
" 1912	10,725,732	202	61	26	16	305	99 23	28 24	
<hr/>									
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)									
<hr/>									
Half-year ending									
July 31, 1923	9,605,077	386	94	16	9	455	47 38		
Jan. 31, 1923	9,500,000	448	126	21	12	607	90 54	64 37	
July 31, 1922	9,500,000	469	110	20	10	609	89 79	64 21	
Jan. 31, 1922	9,400,000	442	109	21	11	598	91 79	62 00	
July 31, 1921	9,400,000	372	103	14	5	494	92 48	52 60	
Jan. 31, 1921	9,400,000	272	102	9	20	403	97 .5	61 50	
<hr/>									
Year ending									
July 31, 1920	9,400,000	640	132	26	73	871	55 65	92 70	
Aug. 31, 1919	11,186,028	1,312	231	109	76	1,728	98 53	137 95	
" 1912	10,752,732	1,402	228	65	65	1,804	98 28	167 61	

## INTERNATIONAL COTTON BULLETIN

71

RUSSIA

Date	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted) "INVISIBLE" SUPPLY						Spndls. Spndls., Total all kinds of Cotton Lbales
	AMERICA	ASIA	INDIAN	EUROPEAN	SUNDRIES	TOAL W.	
Feb. 1, 1923	7,245,935*	13	—	1	70	84	46,67
" 1923	7,100,000	1	—	—	11	12	10,63
" 1921	7,100,000	—	—	—	177	177	236,56
" 1920	—	—	—	—	—	—	—
Mar. 1, 1914	7,481,377	106	—	—	454	504	68,35
" 1913	7,526,119	75	—	12	22	—	67,52
Aug. 1, 1923	7,215,935	26	—	7	20	—	—
" 1922	7,100,000*	18	—	—	—	—	—
" 1921	—	—	—	—	—	—	—
" 1920	—	—	—	—	—	—	—
Sept. 1, 1913	7,667,908	129	—	11	28	394	77,16
" 1912	7,400,000	108	5	—	22	544	71,51
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES							
Half-year ending July 31, 1923	7,245,985*	61	—	—	1	1,21	106,70
Jan. 31, 1923	7,215,935*	61	—	—	1	2,84	161,11
July 31, 1922	7,100,000*	24	—	—	4	—	—
Jan. 31, 1922	7,100,000*	3	—	—	3	229	100,00
July 31, 1921	7,100,000	—	—	—	—	372	2,636
Jan. 31, 1921	7,100,000*	—	—	—	2	—	—
Year ending July 31, 1920	—	—	—	—	1	2,52	100,00
Aug. 31, 1913	7,667,908	487	—	21	87	1,911	77,18
" 1912	7,400,000	618	—	21	82	1,351	91,15
* Avg. 1910-1913	1,900,000	1,123	1,500,000	Avg. 1,100,000	1,100,000	1,100,000	269,85

## INTERVALION AL COITOY BULLETIN

## ITALY

Date	Total Estimated Spindles in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES			Spindle Percentage of Returns received in which estimated is 1 to 1	Per 1,000 Spindles Total eff. in 1 m. Bales
		AMERICAN	EAST INDIAN	EGYPTIAN		
Feb. 1, 1923	4,560,000	120	15	12	2	179
" 1922	4,550,000	126	52	7	2	187
" 1921	4,506,284	110	68	6	1	165
" 1920	4,775,000	109	67	17	5	198
Mar. 1, 1914	4,000,000	134	62	7	10	213
" 1913	4,560,000	124	90	6	9	169
Aug. 1, 1923	4,570,000	99	57	12	2	161
" 1922	4,560,000	119	50	8	2	179
" 1921	4,506,284	160	52	4	1	217
" 1920	4,511,800	149	88	14	4	255
Sept. 1, 1918	4,800,000	83	86	4	7	180
" 1912	4,560,000	119	42	5	3	169
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES						
Half-year ending July 31, 1923	4,570,000	274	131	21	4	433
Jan. 31, 1923	4,560,000	827	108	20	5	460
July 31, 1922	4,560,000	309	99	14	2	425
Jan. 31, 1922	4,550,000	264	101	8	2	375
July 31, 1921	4,506,284	260	97	b	1	366
Jan. 31, 1921	4,506,284	902	111	12	4	429
Year ending July 31, 1920	4,514,800	571	153	38	8	770
Aug. 31, 1918	4,000,000	570	175	19	25	789
" 1912	4,580,000	779	205	27	17	1,028

# CZECHO-SLOVAKIA (AND) AUSTRIA UP TO 1914)

Date	Total Estimated Number of Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted) "INVISIBLE" SUPPLY			TOTAL	On which cotton is based	Cotton received in Czechoslovakia	Spindles of Cotton	Total all 1 in Bales
		AMERICAN	EAST INDIAN	EGYPTIAN					
Feb. 1, 1923	3,502,400	25	6	1	1	33	88	73	9,71*
" 1922	3,565,164	40	11	3	1	55	79	23	12,31
" 1921	3,588,756	30	7	2	2	41	96	01	11,01*
" 1920	3,572,000	5	1	—	—	6	99	5	1,93
Mar. 1, 1914	4,941,323	112	65	10	6	193	97	79	39,04
" 1913	4,864,452	125	31	9	9	173	100	00	9,79
Aug. 1, 1923	3,508,444	18	10	2	1	31	87	10	8,88
" 1922	3,549,485	42	10	2	2	56	80	79	15,77*
" 1921	3,582,772	32	10	1	1	43	76	29	12,31
" 1920	3,564,420	67	11	1	2	91	14	71	22,47
Sept. 1, 1913	4,908,458	77	67	6	4	154	100	00	31,12
" 1912	4,787,935	100	59	7	4	170	100	00	9,60
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)									
Half-year ending July 31, 1923	3,508,444	87	41	6	4	1,5	87	10	13,13
Jan. 31, 1923	3,502,400	91	20	2	3	116	58	7,	12,92*
July 31, 1922	3,549,485	142	28	4	4	173	80	79	17,95
Jan. 31, 1922	3,565,164	167	27	5	2	201	79	23	56,11
July 31, 1921	3,582,772	119	26	4	1	150	76	29	11,52
Jan. 31, 1921	3,589,756	89	17	2	2	110	96	01	9,80
Year ending July 31, 1920	3,584,420	192	18	3	6	219	41	71	61,0*
Aug. 31, 1918	4,909,458	627	154	33	23	837	100	00	170,52
" 1912	4,797,935	645	162	34	23	864	100	00	150,10

\*Exclusive of Austria. O, the 4,941,310 spindles existing in Austria in 1914. The number 1 cotton weaving looms in Czecho-Slovakia is 116,600.

**SPAIN**

Date	Total Estimated Number of Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)			Spindle Production of Returns reduced on which steam is used	Per 1000 Spins Total of Cotton Bales
		AMERICAN	ASIAN	EGYPTIAN		
Feb. 1, 1928	1,812,785	27	4	8	—	100 00
" 1922	1,805,785	25	1	2	—	100 00
" 1921	1,805,785	71	17	4	2	12 19
" 1920	2,000,000*	79	7	3	1	15 03
Mar. 1, 1914	2,000,000*	51	13	3	1	39 51
" 1918	2,200,000	58	14	4	14	40 57
Aug. 1, 1928	1,812,785	32	3	1	1	89
" 1922	1,805,785	118	16	10	2	18
" 1921	1,805,785	60	18	6	1	91
" 1920	1,800,000	14	4	1	1	90
Sep. 1, 1918	2,000,000	30	6	2	1	78
" 1912	2,200,000	35	5	2	3	90
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES		(000's omitted)				
Half-year ending July 31, 1928	1,812,785	94	28	17	2	141
Jan. 31, 1928	1,812,785	155	37	16	2	210
July 31, 1922	1,805,785	180	80	15	—	225
Jan. 31, 1922	1,805,785	114	16	4	3	187
July 31, 1921	1,805,785	86	24	4	3	117
Jan. 31, 1921	1,805,785	138	34	7	1	180
Year ending July 31, 1920	1,800,000	305	40	25	20	890
Aug. 31, 1918	2,000,000*	285	34	20	19	358
" 1912	2,200,000*	330	15	18	12	375

— \*1 estimate

## B E L G I U M

Date	Total of factories Number of Spinning Mills, in countries	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)			Spindles P.L.C.N.L.C. in Kettles accorded on which cotton is not included	Spindles P.L.C.N.L.C. in Kettles accorded on which cotton is not included	Per 1,000 Spindles Total all kinds of Cotton Bales
		American	East Indian	Egyptian			
Feb. 1, 1923	1,672,797	27	19	1	48	100 00	26 72
" 1922	1,584,601	26	26	1	54	100 00	31 11
" 1921	1,501,412	32	46	—	78	89 30	19 93
" 1920	1,389,119	26	17	—	43	85 15	28 69
Mar. 1, 1914	1,318,134	27	43	2	72	100 00	47 85
" 1913	1,468,338	48	33	—	82	100 00	55 50
Aug. 1, 1923	1,682,965	17	26	1	49	100 00	29 71
" 1922	1,620,921	21	22	1	55	100 00	27 35
" 1921	1,546,001	30	28	1	60	100 00	38 55
" 1920	1,572,500	33	39	1	73	93 32	16 21
Sept. 1, 1913	1,492,258	19	24	1	44	100 00	29 75
" 1912	1,387,634	22	29	—	51	100 00	36 62
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)							
Half-year ending							
July 31, 1923	1,682,965	62	68	2	7	139	82 59
Jan. 31, 1923	1,672,797	67	59	2	5	133	79 35
July 31, 1922	1,620,921	69	49	2	1	121	71 31
Jan. 31, 1922	1,584,601	67	51	2	2	122	76 96
July 31, 1921	1,548,001	43	39	1	1	83	89 30
Jan. 31, 1921	1,591,121	70	56	1	1	128	100 00
Year ending							
July 31, 1920	1,572,500	170	78	2	1	251	93 32
Aug. 31, 1919	1,492,258	171	82	1	3	257	100 00
" 1912	1,387,634	172	61	1	1	235	100 00

**SWITZERLAND****ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES  
(000's omitted) "INVISIBLE" SUPPLY**

Date	Total Estimated Number of Spindles existing in country	AMERICAN			EGYPTIAN		SUNDRIES		TOTAL		Spindle Percentage of Returns received on which estimate is based	Per 1,000 Spindles Total, all kinds of Cotton Bales
		EAST INDIAN	EGYPTIAN	SUNDRIES	TOTAL	TOTAL						
Feb. 1, 1923	1,519,000	14	2	11	1	1	28	99.61	18.45			
" 1922	1,519,000	21	2	10	1	1	94	99.51	21.98			
" 1921	1,530,790	22	5	10	—	—	37	98.81	23.86			
" 1920	1,522,914	21	6	11	—	—	38	93.47	25.49			
Mar. 1, 1914	1,385,572	20	3	15	—	—	38	92.01	27.66			
" 1913	1,398,032	16	1	13	1	1	31	91.52	22.74			
Aug. 1, 1923	1,512,562	11	3	11	1	1	26	96.82	31.07			
" 1922	1,519,000	14	2	10	1	1	27	90.83	17.71			
" 1921	1,530,790	16	6	11	—	—	33	88.75	21.69			
" 1920	1,536,074	24	8	9	—	—	41	89.88	26.25			
Sept. 1, 1913	1,398,062	10	2	7	1	1	20	90.68	14.23			
" 1912	1,408,456	13	1	9	—	—	24	91.18	16.67			
<b>ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)</b>												
<b>Half-year ending July 31, 1923</b>												
July 31, 1922	1,512,562	26	4	16	1	1	47	96.82	16.53			
Jan. 31, 1923	1,519,000	31	3	14	—	—	48	99.61	32.24			
July 31, 1922	1,519,000	20	3	18	—	—	45	90.83	30.08			
Jan. 31, 1922	1,519,000	26	3	18	1	1	43	99.51	27.54			
July 31, 1921	1,530,790	26	3	11	—	—	40	88.75	26.19			
Jan. 31, 1921	1,530,790	29	4	9	—	—	42	98.81	27.71			
<b>Year ending July 31, 1920</b>												
July 31, 1919	1,536,074	60	6	21	—	—	87	89.88	57.60			
Aug. 31, 1918	1,398,062	65	4	29	1	1	99	90.68	70.45			
" 1912	1,408,456	65	3	27	4	4	99	91.18	70.67			

**POLAND**

Date	Total Estimated Number of Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)			ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)			Spindle Percentage of Returns received on which estimate is based	Per 1,000 Spindles. Total # Kinds of Cotton Bales
		AMERICAN	EAST INDIAN	EGYPTIAN	SUNDRIES	TOTAL			
Feb. 1, 1923	1,200,191	14	6	1	1	22	59.78	19.50	
" 1922	1,185,623	9	8	1	1	19	37.58	16.07	
" 1921	1,178,953	5	4	2	1	12	17.10	10.48	
" 1920	1,400,000	2	—	—	—	2	4.23	1.83	
Mar. 1, 1914	1,400,000	25	10	6	33	74	60.75	53.08	
" 1913	1,200,000	22	5	2	80	109	77.21	90.58	
Aug. 1, 1923	1,200,191	12	6	2	1	21	61.19	16.66	
" 1922	1,200,191	14	9	2	3	28	49.69	22.11	
" 1921	1,161,177	13	6	1	5	25	38.25	20.56	
" 1920	1,400,000	12	7	2	1	22	9.06	15.78	
Sept. 1, 1913	1,322,257	20	5	6	88	119	74.87	90.75	
" 1912	1,200,000	17	5	3	97	122	75.99	101.21	
Half-year ending July 31, 1923	1,200,191	74	24	3	2	103	61.19	85.82	
Jan. 31, 1923	1,200,191	93	20	4	8	125	59.78	103.79	
July 31, 1922	1,200,191	88	19	3	7	117	49.69	97.61	
Jan. 31, 1922	1,185,623	82	18	1	2	103	37.58	87.35	
July 31, 1921	1,171,177	55	14	3	6	78	38.25	67.44	
Jan. 31, 1921	1,178,953	42	7	3	4	56	17.10	47.12	
Year ending									
July 31, 1920	1,400,000	69	20	1	1	91	9.06	64.52	
Aug. 31, 1920	1,322,257	125	15	15	259	414	74.87	312.80	
" 1919	1,200,000	155	17	7	244	428	75.99	352.23	

## APPENDIX

## H

Date	Total Estimated Number of Spinning Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)			Spindle Percent. of Returns received in which estimated is based)	1,000 Spindles in which all Cotton Bales
		AMERICAN	EGYPTIAN	SUNDRIES		
Feb. 1, 1923	638,292	15	4	—	19	100 00
" 1922	637,481	10	6	—	16	100 00
" 1921	619,579	21	10	—	21	100 00
" 1920	596,542	21	12	—	13	90 78
Mar. 1, 1914	499,904	9	5	—	16	100 00
" 1918	470,956	10	3	3	16	100 00
Aug. 1, 1923	668,540	10	8	—	16	100 00
" 1922	631,836	16	10	—	26	100 00
" 1921	630,160	14	10	—	24	100 00
" 1920	597,342	12	15	—	29	100 00
Sep. 1, 1913	478,932	6	8	—	12	100 00
" 1912	453,732	8	2	—	10	100 00
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)						
Half-year ending July 31, 1923	668,540	38	18	1	52	100 00
Jan. 31, 1923	638,292	43	12	—	53	100 00
July 31, 1922	634,886	43	12	—	55	100 00
Jan. 31, 1922	637,484	43	12	—	53	100 00
July 31, 1921	630,160	41	12	1	54	100 00
Jan. 31, 1921	619,579	36	13	1	52	100 00
Year ending:						
July 31, 1920	597,942	85	22	1	108	100 00
Aug. 31, 1918	474,382	68	12	6	86	100 00
" 1912	453,732	74	9	2	85	100 00

**SWEDEN**

Date	Total Estimated Number of Spinning Spindles Existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)				Spindle P.C.C. in c.t. Return Received on which c. t. mfr. is 1 c.t.d.	Per 1,000 Spindles Total all kinds of Cotton Bales
		AMERICAN	EAST INDIAN	EGYPTIAN	STRANDS		
Feb. 1, 1923	565,004	14	1	—	—	15	65.46
" 1922	575,897	18	1	—	—	19	65.33
" 1921	659,080	10	10	—	—	21	74.33
" 1920	650,328	29	—	—	—	29	69.66
Mar. 1, 1914	550,000	28	1	—	—	32	69.16
" 1913	529,772	30	1	—	—	31	71.31
Aug. 1, 1923	566,361	11	2	1	—	14	94.19
" 1922	575,897	11	1	—	—	12	84.17
" 1921	609,985	19	2	—	—	21	85.50
" 1920	670,350	83	3	—	—	36	60.16
Sept. 1, 1913	534,000	18	2	—	—	20	71.52
" 1912	529,772	15	1	—	—	16	71.37
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)							
Half-year ending July 31, 1923	566,361	36	2	1	—	19	91.18
Jan. 31, 1923	565,004	42	2	1	—	15	65.46
July 31, 1922	575,897	37	1	—	—	38	—
Jan. 31, 1922	575,897	37	1	—	—	38	64.17
July 31, 1921	609,985	26	1	—	—	27	83.70
Jan. 31, 1921	659,080	42	2	—	—	43	71.53
Year ending July 31, 1920	670,350	113	2	—	—	118	60.18
Aug. 31, 1913	534,000	110	3	—	—	115	71.52
" 1912	529,772	103	7	—	—	71	37

PORTUGAL

Date	Total Estimated Number of Spinning Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted). "INVISIBLE" SUPPLY				Spindle Percentage of Returns received on which estimate is based	Per 1,000 Spindles. Total all kinds of Cotton. Bales
		AMERICAN	EAST INDIAN	EGYPTIAN	SUNDRIES		
Feb. 1, 1923	487,152	5	—	—	4	9	19.77
" 1922	400,000	4	—	—	6	10	23.57
" 1921	400,000	10	—	—	9	19	24.50
" 1920	—	—	—	—	—	—	—
Mar. 1, 1914	482,000	2	—	—	2	4	62.24
" 1913	482,000	2	—	—	2	4	62.24
Aug. 1, 1923	487,152	6	—	—	6	12	100.00
" 1922	487,152	6	—	—	3	9	100.00
" 1921	400,000	18	—	—	—	13	10.89
" 1920	482,000	3	—	—	2	5	22.48
Sept. 1, 1913	480,000	6	—	—	1	7	100.00
" 1912	480,000	6	—	—	2	8	10.76
							93.60
							17.26
							85.42
							20.73
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)							
Half-year ending							
July 31, 1923	487,152	25	—	2	24	51	100.00
Jan. 31, 1923	487,152	21	1	—	13	35	100.00
July 31, 1922	487,152	21	1	—	11	33	104.69
Jan. 31, 1922	400,000	16	1	—	19	36	72.46
July 31, 1921	400,000	86	—	—	—	—	66.02
Jan. 31, 1921	400,000	28	—	—	27	55	90.01
Year ending							
July 31, 1920	482,000	53	—	—	14	67	100.00
Aug. 31, 1918	480,000	60	1	1	13	75	93.60
" 1912	480,000	51	1	1	16	69	165.71

FINLAND

Date	Total Number of Spinning Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)						Spindle Percentage of Returns received on which estimate is based	Per 1,000 Spindles. Total all kinds of Cotton. Bales
		AMERICAN	EAST INDIAN	EGYPTIAN	SUNDRIES	TOTAL			
Feb. 1, 1923	238,684	6	—	—	—	6	100.00	24.48	
" 1922	238,932	3	—	—	—	3	100.00	13.84	
" 1921	239,476	3	—	—	—	3	100.00	12.94	
" 1920	280,000	5	—	—	—	5	52.69	21.74	
Mar. 1, 1914	280,458	4	—	—	—	4	100.00	17.30	
" 1913	223,882	5	—	—	—	5	100.00	22.45	
Aug. 1, 1923	240,862	2	—	—	—	2	100.00	8.30	
" 1922	238,862	4	—	—	—	4	100.00	16.27	
" 1921	239,804	4	—	—	—	4	100.00	16.01	
" 1920	239,828	4	—	—	—	4	100.00	16.50	
Sept. 1, 1913	222,392	5	—	—	—	5	50.31	21.32	
" 1912	220,000	5	—	—	—	5	95.29	22.98	
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)									
Half-year ending July 31, 1923	240,862	16	—	—	—	16	100.00	66.43	
Jan. 31, 1923	238,684	16	—	—	—	16	100.00	67.24	
July 31, 1922	238,862	15	—	—	—	15	100.00	64.55	
Jan. 31, 1922	238,932	18	—	—	—	18	100.00	77.07	
July 31, 1921	239,804	14	—	—	—	14	100.00	58.30	
Jan. 31, 1921	230,476	15	—	—	—	15	100.00	62.47	
Year ending July 31, 1920	239,828	26	—	—	—	26	100.00	100.48	
Aug. 31, 1913	222,392	34	—	—	—	34	50.31	156.54	
							93	95.29	150.05

# DENMARK

Date	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)			ESTIMATED CONSUMPTION In thousands of ACTUAL BALES (000's omitted)		
	AMERICAN	ASIAN	EUROPEAN	AMERICAN	ASIAN	EUROPEAN
Feb. 1, 1923	95,136	3	—	—	1	100,00
" 1922	95,844	1	—	—	1	100,00
" 1921	97,801	1	—	—	1	100,00
" 1920	98,720	6	—	—	6	91,07
Mar. 1, 1914	93,198	1	—	—	1	100,00
" 1913	86,836	1	—	—	1	100,00
Aug. 1, 1923	97,084	3	—	—	2	100,00
" 1922	96,644	3	—	—	2	100,00
" 1921	95,644	2	—	—	2	100,00
" 1920	92,404	3	—	—	3	100,00
Sep. 1, 1918	99,736	1	—	—	1	100,00
" 1912	93,694	1	—	—	1	100,00
Half-year ending July 31, 1923	97,064	11	1	—	12	100,00
Jan. 31, 1923	95,136	15	—	—	16	100,00
July 31, 1922	96,014	8	—	—	9	100,00
Jan. 31, 1922	95,844	10	—	—	10	100,00
July 31, 1921	95,044	3	—	—	3	100,00
Jan. 31, 1921	97,804	5	—	—	6	100,00
Year ending July 31, 1920	92,404	23	—	—	23	100,00
Aug. 31, 1913	89,556	24	—	—	25	100,00
" 1912	83,684	24	—	—	24	100,00

## NORTH AMERICA

Date	Total I stimulus Number of Spindles ext- ing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALLS					(000's omitted)	Per 100 sq. mds
		AMERICAN	ASIAN	AFRICAN	INDIAN	SUDAN'S		
Feb. 1, 1923	65,464	1	—	—	—	—	100.00	11.72
" 1922	66,724	1	—	—	—	—	100.00	26.71
" 1921	67,024	2	—	—	—	—	100.00	1.79
" 1920	65,864	6	—	—	—	—	59.19	50.46
Mar. 1, 1914	55,772	2	—	—	—	—	100.00	2.61
" 1913	74,564	2	—	—	—	—	100.00	34.9
Aug. 1, 1923	65,904	1	—	—	—	—	100.00	1.24
" 1922	65,464	1	—	—	—	—	100.00	—
" 1921	56,000	1	—	—	—	—	53.33	25.00
" 1920	62,340	5	—	—	—	—	55.77	0.90
Sept. 1, 1918	74,572	1	—	—	—	—	100.00	1.91
" 1912	73,568	1	—	—	—	—	100.00	29.46
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALLS								
(000's omitted)								
Half-year ending								
July 31, 1923	65,804	3	—	—	—	—	100.00	1.2
Jan. 31, 1923	65,464	4	—	—	—	—	100.00	61.07
July 31, 1922	65,161	4	—	—	—	—	100.00	1.1
Jan. 31, 1922	66,724	3	—	—	—	—	100.00	1.49
July 31, 1921	67,024	3	—	—	—	—	53.33	31.97
Jan. 31, 1921	67,024	4	—	—	—	—	100.00	61.07
Year ending	—	—	—	—	—	—	—	—
July 31, 1920	72,724	12	—	—	—	—	52.77	170.30
Aug. 31, 1913	74,372	9	—	—	—	—	100.00	1.12
" 1912	73,568	10	—	—	—	—	100.00	146.60

## INDIA

Date	Total Estimated Number of Spinning Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted)				Spindle Percentage of Returns received on which estimate is based.	Per 1,000 Spindles, Total all kinds of Cotton. Bales
		AMERICAN	EAST INDIAN	EGYPTIAN	SUNDRIES		
Feb. 1, 1923	7,331,210	14	595	4	2	615	71.83 83.89
" 1922	6,870,804	21	764	7	26	818	81.32 119.16
" 1921	6,763,076	2	581	6	—	593	83.93 87.81
" 1920	6,689,680	1	732	1	1.4	748	76.94 111.68
Mar. 1, 1914	6,397,142	5	505	—	—	510	80.22 79.57
" 1913	6,400,000	31	858	—	67	456	76.55 71.46
Aug. 1, 1923	7,381,210	5	717	1	10	733	85.17 99.98
" 1922	6,870,804	19	882	11	18	930	85.37 135.30
" 1921	6,763,076	31	997	9	19	1,056	80.08 156.07
" 1920	6,689,680	—	981	1	3	985	79.50 147.28
Sep. 1, 1918	6,084,378	12	622	—	—	634	77.98 104.34
" 1912	6,165,214	89	590	—	1	680	71.27 110.09
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)							
Half-year ending							
July 31, 1923	7,331,210	5	1,015	1	15	1,036	85.17 141.31
Jan. 31, 1923	7,331,210	21	1,182	4	9	1,216	71.32 165.75
July 31, 1922	6,870,804	19	1,102	7	23	1,151	81.32 167.45
Jan. 31, 1922	6,870,804	35	1,105	3	20	1,168	85.37 169.27
July 31, 1921	6,763,076	26	1,079	4	20	1,120	83.93 166.98
Jan. 31, 1921	6,763,076	1	1,109	2	2	1,114	80.08 164.81
Year ending							
July 31, 1920	6,689,680	—	2,118	3	11	2,132	79.50 318.76
Aug. 31, 1919	6,084,378	94	2,081	1	1	2,177	77.98 357.94
" 1912	6,165,214	112	2,139	1	8	2,255	71.27 363.84

## JAPAN

ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES  
(000's omitted) "INVISIBLE" SUPPLY)

Date	Total Estimated Number of Spindles exacting in country	AMERICAN			EGYPTIAN		SUNDRIES		TOTAL		Spindle Percentage of Return derived on which estimate is based	Per 1,000 Spindles Total, all 1. of Cotton Bales
		EAST INDIAN	EGYPTIAN	SUNDRIES	TOTAL							
Feb. 1, 1923	4,483,258	167	378	22	35	602	95.03	179.80				
" 1922	3,803,396	316	439	18	13	806	91.73	208.33				
" 1921	3,388,262	202	567	13	10	792	80.90	168.12				
" 1920	2,411,344	119	381	21	49	570	98.29	187.45				
Mar. 1, 1914	2,250,000	117	298	6	38	154	100.00	122.72				
" 1913	2,176,960	89	145	5	37	276	96.61	79.63				
Aug. 1, 1923	4,877,416	160	370	21	30	781	95.69	160.12				
" 1922	4,645,553	307	565	19	13	904	93.85	191.68				
" 1921	4,126,504	217	488	12	16	728	96.36	176.25				
" 1920	3,680,090	311	877	19	21	1,231	85.51	333.34				
Sept. 1, 1913	2,300,000	98	456	7	26	587	99.36	255.45				
" 1912	2,191,960	165	417	9	18	610	92.47	678.21				
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)												
Half-year ending July 31, 1923	4,877,416	830	877	17	69	1,263	95.69	265.10				
Jan. 31, 1923	4,753,612	898	845	14	31	1,283	95.03	269.90				
July 31, 1922	4,645,553	481	785	14	30	1,260	93.85	271.31				
Jan. 31, 1922	4,483,258	365	695	12	40	1,120	91.73	247.96				
July 31, 1921	4,126,504	285	698	9	22	1,009	96.36	244.35				
Jan. 31, 1921	3,803,396	837	723	7	46	1,113	80.90	202.79				
Year ending												
July 31, 1920	3,690,090	820	1,280	22	218	2,229	85.51	660.30				
Aug. 31, 1918	2,960,000	425	992	16	155	1,598	99.56	690.63				
" 1912	2,191,960	395	876	22	137	1,450	92.17	602.01				

## U.S. AMERICA

Date	Total Estimated Number of Spinning Spindles operating in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted) "INVISIBLE" SUPPLY						Pct. 1,000 Spindles, lot of all kind of Cotton Bales
		AMERICAN	LAS INDIA	IGAPIN	SUNDRIES	TO MAN	Spindle Pct. of Rents received on which claim it is based	
Feb. 1, 1923	37,225,000	1,908	3	43	23	1,077	100.00	53.11
" 1922	36,845,000	1,592	1	44	31	1,071	100.00	45.36
" 1921	36,051,000	1,102	5	57	20	1,257	100.00	31.87
" 1920	35,500,000	1,901	3	35	29	1,088	100.00	36.00
Mar. 1, 1914	31,519,766	1,686	2	28	10	1,726	100.00	51.76
" 1913	30,579,000	1,958	—	—	—	1,938	100.00	61.03
Aug. 1, 1923	37,397,331	977	9	60	24	1,070	100.00	28.61
" 1922	36,916,000	1,121	6	48	34	1,207	100.00	32.27
" 1921	36,478,000	1,206	6	18	25	1,102	100.00	30.21
" 1920	35,872,000	1,208	1	90	40	1,357	100.00	37.83
Sept. 1, 1913	31,519,766	619	18	71	11	719	100.00	22.81
" 1912	30,578,528	706	21	77	11	821	100.00	26.85
ESTIMATED CONSUMPTION In thousands of ACTUAL BALES (000's omitted)								
Half-year ending								
July 31, 1923	37,397,331	3,198	13	103	51	3,365	100.00	89.98
Jan. 31, 1923	37,225,000	3,125	8	77	47	3,257	100.00	87.40
July 31, 1922	36,913,000	2,760	5	—	—	—	—	—
Jan. 31, 1922	36,843,000	2,855	6	82	51	2,898	100.00	78.31
July 31, 1921	36,478,000	2,461	5	52	31	2,539	100.00	81.51
Jan. 31, 1921	36,051,000	2,221	5	58	26	2,320	100.00	61.35
Year ending								
July 31, 1920	35,872,000	6,010	12	243	160	6,425	100.00	179.11
Aug. 31, 1913	31,519,766	5,553	7	133	32	5,786	100.00	183.57
" 1912	30,578,528	5,368	Not stated	Not stated	Not stated	5,366	100.00	175.55

CANADA

Date	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's, omitted)			ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's, omitted)		
	AMERICAN	PAKISTAN	EGYPTIAN	SUNDRIES	TO TOTAL	Per 1,000 Spindles in country Spindles exclud- ing in country
Feb. 1, 1923	1,076,084	46	—	—	46	60 14
" 1922	1,051,112	36	—	—	37	92 71
" 1921	1,100,000	40	—	—	11	88 66
" 1920	1,167,837	72	—	—	72	80 66
Mar. 1, 1914	860,000	18	—	—	15	99 42
" 1913	855,293	67	—	—	67	70 70
Aug. 1, 1923	1,076,084	21	—	—	25	26 12
" 1922	1,051,112	27	—	—	27	38 20
" 1921	1,100,000	34	—	—	31	88 01
" 1920	1,200,000	59	—	—	59	56 75
Sept. 1, 1913	855,293	28	—	—	28	47 00
" 1912	855,293	45	—	—	15	91 00
						53 95
<hr/>						
Half-year ending July 31, 1923	1,076,084	83	2	—	63	26 12
Jan. 31, 1923	1,076,084	92	—	—	92	60 11
July 31, 1922	1,051,112	83	—	—	83	55 20
Jan. 31, 1922	1,051,112	73	1	—	71	92 71
July 31, 1921	1,100,000	69	—	—	69	88 01
Jan. 31, 1921	1,100,000	78	2	—	80	68 65
Year ending July 31, 1920	1,200,000	—	—	—	—	208 75
Aug. 31, 1913	855,293	—	—	—	—	113 11
" 1912	855,293	—	—	—	—	126 01

## MEXICO

Date	Total Estimated Number of Spindles existing in country	ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES (000's omitted) "INVISIBLE" SUPPLY					Spindle Practical or Return Received in which time is used	Spindle Practical or Return Received in which time is used
		AMERICAN	MEXICAN	INDIAN	SUNDRIES	TOAL		
Jan. 16, 1923	770,000	1	40	—	—	44	31,03	57,67
" 1922	725,000	10	24	—	—	34	30,32	17,75
Feb. 1, 1921	720,000	48	21	—	—	69	28,89	98,20
Mar. 1, 1920	720,000	32	32	—	—	32	21,99	15,11
Mar. 1, 1914	750,000	6	8	—	1	15	24,21	19,20
" 1913	700,000	9	46	1	—	50	35,48	71,24
Aug. 1, 1923	770,000	9	22	1	—	31	22,07	40,26
" 1922	753,837	1	32	—	—	36	35,12	47,13
" 1921	720,000	29	7	1	—	37	30,67	51,75
" 1920	720,000	1	31	—	—	32	35,20	45,20
Sept. 1, 1913	700,000	1	10	1	—	12	29,37	24,63
" 1912	700,000	3	16	1	—	20	31,95	29,53
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES (000's omitted)								
Half-year ending:								
July 31, 1923	770,000	9	34	—	—	63	22,09	61,82
Jan. 31, 1923	770,000	11	62	—	—	73	31,08	95,67
July 31, 1922	753,837	11	57	—	—	68	35,42	90,42
Jan. 31, 1922	725,000	39	25	—	—	61	30,82	89,46
July 31, 1921	720,000	37	19	1	—	57	30,67	79,44
Jan. 31, 1921	720,000	5	59	—	—	64	28,89	88,72
Year ending:								
July 31, 1920	720,000	1	124	—	—	125	35,20	174,99
Aug. 31, 1919	700,000	11	145	2	—	158	29,97	226,99
" 1918	700,000	14	108	1	—	123	31,98	176,95

## BRAZIL

ESTIMATED MILL STOCKS—In thousands of ACTUAL BALES  
(000's omitted) "INVISIBLE" SUPPLY

Date	Total Estimated Number of Spinning Spindles existing in country	AMERICAN	LASI INDIAN	BRAZILIAN	SCANDINAVIA	TO TMI	% Indl. Percent of Return Received in which claim is based	Pr 1,000 Spindles, 1 ton in 1 ton is of Cotton Bales
Feb. 1, 1923	1,860,000				105	105	100 00	62 .0
" 1922	1,570,000				156	156	100 00	99 36
" 1921	1,500,000				119	119	14 31	79 20
" 1920	1,600,000				163	163	26 74	101 79
Mar. 1, 1924	1,400,000				87	87	22 02	62 11
" 1913	1,200,000				103	103	26 19	56 07
Aug. 1, 1923	1,700,000				25	25	100 00	61 79
" 1922	1,600,000				146	146	100 00	91 23
" 1921	1,521,800				33	33	100 00	21 56
" 1920	1,600,000				89	89	20 62	11 72
Sep. 1, 1913	1,200,000				119	119	25 91	108 02
" 1912	1,100,000				122	122	31 30	108 02
ESTIMATED CONSUMPTION—In thousands of ACTUAL BALES								
Half-Year ending July 31, 1923	1,700,000				280	280	100 00	161 71
Jan. 31, 1923	1,680,000				275	275	100 00	16 , 90
July 31, 1922	1,600,000				250	250	100 00	16 25
Jan. 31, 1922	1,570,000				227	227	100 00	111 33
July 31, 1921	1,521,300				225	225	100 00	150 12
Jan. 31, 1921	1,500,000				220	220	11 1	229 19
Year ending July 31, 1920	1,600,000				366	366	20 63	228 00
Aug. 31, 1918	1,200,000				508	508	2, 91	123 37
" 1912	1,100,000				637	637	31 30	579 38

# American Cotton.



Cotton Ginning Factory in U.S.A.

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## The Price of American Cotton under the New Conditions of Production.\*

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By ARTHUR RICHMOND MARSH.

**A**LTHOUGH there are now, as is regularly the case under similar conditions, varying degrees of hopefulness—or hopelessness—among members of the cotton trade with regard to the ultimate yield of the present American cotton crop, some still holding that the admittedly unpropitious start of the crop over most of the Cotton Belt, except Texas, can still in considerable measure be overcome, others interpreting the relatively low end-June condition of the crop as signifying that hardly less than a miracle of nature will be required to make the yield other than inadequate for the world's needs, nevertheless, upon one point experienced students of cotton are very generally agreed, namely that the conditions of cotton production in this country have been fundamentally changed within the past three or four years, and that the new conditions must always be taken into account in any attempt to forecast the probable course of the price of cotton of American growth. Two economic factors powerfully affecting the average or the "marginal" cost of producing cotton in the United States have now come into play, the one tending to increase this cost to a very important extent by reducing greatly the expectancy of return in cotton itself from a given investment of capital and labour in cotton growing, the other tending to diminish severely the number of farmers and farm workers willing to devote themselves to the production of cotton, upon such terms of remuneration for their effort as have heretofore obtained.

It is scarcely necessary to say that the first of these factors is the occupation by the boll-weevil of practically the entire cotton-producing area east of the Mississippi River, where the climatic conditions are far

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\* In view of the report of the American Cotton Crop Investigation Commission, published at the commencement of this Bulletin, the present article, written by a leading New York cotton merchant and Editor of the *Economic World*, is very interesting reading.

more favourable to the uninterrupted development and destructiveness of this insect pest year after year than they are in the drier and hotter regions of Texas and Southern Oklahoma. The second factor is the permeation of the farm population of the Atlantic and Mississippi Valley States by the knowledge that the industrial and urban occupations open to its members yield compensations which are both much larger and much more dependable than is that which can be counted upon from growing cotton under the conditions that now have to be faced. It should perhaps be added that these two economic factors directly connected with cotton itself are supplemented and rendered more decisive in their effects by an economic influence of a larger and more general kind, the world-wide alteration of the value of money, which is one of the most impressive phenomena of this post-war period in all countries, whether those compelled to abandon the gold standard or those in which gold has accumulated to a disproportionate extent.

Taking up in the order just given the factors creating the new conditions of cotton production in the United States we find, first, that by reason of the spread of the boll-weevil over the great territory east of the Mississippi River, where the climate is continuously favourable to the numerous propagation of the pest and where it practically never is held in check by the very hot, dry weather that is apparently the one influence of nature hostile to it, the normal average production of cotton per acre for the whole Cotton Belt has been reduced by something over 30 per cent. from what it was in the pre-weevil years. By this it is not intended to say, of course, that rather extensive variations will not occur from year to year in the average decrease in the per acre yield due to the boll-weevil. Thus, it is the consensus of opinion among experts that the harm done by the boll-weevil to a relatively early crop is much less than that suffered by a crop whose lateness exposes it during the flowering and fruiting period to the attacks of the enormously more numerous and destructive summer broods of the insect. Again, the favourableness or unfavourableness of the season for the boll-weevil in the area west of the Mississippi River greatly affects the relative amount of damage done in that area, and hence the average loss of yield for the entire cotton belt. Allowing for such variations as these, however, the fact seems now to have been clearly demonstrated by the experience of the past five or six seasons that year in and year out American cotton growers as a class must expect fully 30 per cent. less average yield per acre under boll-weevil conditions than they normally obtained before the insect occupied the whole cotton-producing territory, or even after it had spread over Texas and parts of the adjacent States.

Naturally, it is the individual cotton grower, and especially the individual cotton grower in the States east of the Mississippi River, that suffers most directly from this decrease of the expectancy of yield per acre ; when the season is propitious from a weather standpoint his otherwise abundant crop is cut down to only moderate proportions, while in the seasons in which unpropitious weather would naturally render the harvest small his production is reduced to almost nothing. On the other hand, when translated into terms of the total crop—that which chiefly interests the world's cotton trade and industry—the reduced expectancy of yield per acre means that the old measures of size for the cotton crops of the United States must be abandoned ; whereas in the pre-weevil days a really good crop on the present acreage might fairly be expected to be

between 16,000,000 and 17,000,000 bales, a crop of between 12,000,000 and 13,000,000 bales must now be accounted as about the maximum attainable when the plant, as a plant, makes uninterrupted progress from the beginning to the end of the season. Similarly, as against the old disaster crops of from 10,000,000 to 11,000,000 bales, we now know from the experience of the past two years that a season thoroughly unfavourable for the development of the plant may give us a total production of barely 9,000,000 bales. Nor is there as yet any convincing evidence that this state of affairs has been changed—or, in fact, can be changed—by such methods of combating the boll-weevil as have been found most efficacious. To be sure, considerable hopes are entertained by some persons of the benefits to be derived from the systematic use of calcium arsenate as an insecticide, as well as from certain particular plans for planting and cultivating the crop; but most students of cotton are compelled by the known facts reluctantly to accept the conclusion that these expedients have so far failed to demonstrate their worth in indisputable fashion, and that therefore, as things stand, the probabilities all lie still on the side of an average decrease of some 30 per cent. in the per acre yield of cotton in this country by reason of the boll-weevil in any given season.

Even this statement, however, fails to do full justice in an economic sense to the situation created by the boll-weevil. For it is not as though this decrease in the per acre yield could be counted upon as applying uniformly to each cotton-producing State and to each cotton farmer in that State. If this were the case there would perhaps be no insuperable difficulty in the way of accommodating American cotton growing to the new order of things. Unfortunately, the decrease is very far indeed from being uniform, either for the several States or for the farmers within them. As the statistics of cotton production for the past two seasons only too conclusively show, the decrease for a given State instead of being 30 per cent. may be 50 per cent. or more, while instances of individual farmers losing 80 or 90 per cent. of their crop through the boll-weevils' depredations are by no means rare. In other words, this insect pest has created a new hazard in cotton production in this country, and a hazard of tremendous proportions from the standpoint of the individual farmers and of the merchants and bankers upon whom they rely for credit. It is scarcely necessary to add that the new hazard is an especially powerful influence in respect of those cotton producers who are what the economists call "marginal"—that is, the producers who under the best of conditions would make a bare livelihood from this occupation.

It is among these "marginal" producers of cotton—whether they be small farmers, tenant farmers or farm workers, whose rate of remuneration is really determined by the returns obtainable from the crop—that the sharp contrast between the compensation now yielded by industrial and urban employments and that to be expected from cotton farming has begun to exert a most potent influence, leading, as everybody knows, to so extensive a migration from the farms of practically all the cotton-producing States, except Texas and Oklahoma, that it is economically certain that the effect upon the total production of cotton must be important. All students of production know how considerable a part of the total supply of a great commodity like cotton is due to the efforts of the "marginal" producers and how serious a diminution of the total supply of the commodity is sure to result from the abandonment of its production by a numerous body of the "marginal" producers. Nor is this effect

less certain because what is happening is somewhat obscured in the earlier stages of the process of production, as, for example, by the undertaking of a given body of farmers to maintain their acreage unchanged, despite the loss of workers customarily employed in cultivating and harvesting the crop. And this is all the more the case when new and more difficult conditions of production call for more rather than less labour and attention in the process.

The cotton trade and industry, then, in arriving at the price that should be commanded at the present time by cotton of American growth, is confronted at the outset by two economic factors of the most serious kind—a decrease of some 30 per cent. in the expectancy of average per acre yield of cotton in the United States and an already very considerable diminution of the number of "marginal" producers of cotton. Moreover, besides these economic factors directly affecting the cost of production, and hence the market worth, of cotton itself, there must also be taken into account the larger economic influence of the great change in the value of money—or, to state it in its obverse form, in the general level of prices for commodities and services—which has indubitably occurred as a result of the confusions of the European War. Though many business men and some economists affect to regard this change of the value of money, or of the price level, as factitious and impermanent, it is, nevertheless, a present practical fact of the most real kind and one that has the most far-reaching influence upon the prices of all individual commodities. For the prices of all commodities tend irresistibly to harmonize among themselves if they can, only peculiar circumstances of over-production or the like being able to prevent the price of any given commodity from coming into balance with the prices of all the rest at the established level. And of the present price level it may be said that if account be taken of the going rates of remuneration for industrial and urban services as well as of the prices of such commodities proper as are commonly included in the computations of the so-called index numbers it is somewhat more than 100 per cent. higher than that obtaining in the years immediately preceding the war.

On the basis of the change in the value of money or of the price level alone, then, the going market value of American cotton in money should be not far from 100 per cent. higher than it was in the pre-war years. But in addition, the change in the conditions of cotton production described above, with its decrease of 30 per cent. in the average per acre yield that may be expected by the farmer from the same amount of labour and expense, will also in the long run inevitably be translated into terms of enhanced price, the more so since the supply situation is powerfully influenced by the withdrawal of an important number of "marginal" producers of cotton to other more remunerative occupations. (*Reprint from the Economic World, New York, July 14, 1923.*)

#### U.S. COTTON CROP CONDITION—AUGUST REPORT.

The Bureau of Agriculture to-day issued its report on the American cotton crop as on 25th August, according to which the average condition dropped 13.1 on the month to 54.1, against 67.2 previous month, 57.0 last year, 49.3 in 1921 and 63.5 the 10-year average.

With the exception of Virginia, which improved 5 points on the month, all the principal States show heavy deterioration, reaching 22

points in Florida, 17 in Mississippi and Oklahoma, 16 in Texas, 15 in Louisiana, 14 in Alabama, 11 in North Carolina and Arkansas, 7 in South Carolina, 6 in Georgia, 5 in Tennessee and 3 in Missouri.

Compared with a year ago, South Carolina is 11 points and North Carolina 6 points better, while the other States are worse to the extent of 30 points in Florida, 12 in Mississippi, 8 in Alabama, 7 in Louisiana and Oklahoma, 6 in Arkansas, 4 in Texas, 3 in Missouri, 2 in Georgia and 1 point in Tennessee.

The Bureau estimates the yield per acre at 134.8 lbs., against 143.9 lbs. last month and 145.2 lbs. last year, and the indicated crop at 10,788,000 bales, exclusive of linters, against 11,516,000 bales a month ago and 10,575,000 bales a year ago.

The following table gives details with comparisons :

		1923 August	1923 July	1922 August	1921 August	10-year Average
Virginia	..	93	88	68	63	78
North Carolina	..	71	82	65	62	72
South Carolina	..	57	64	46	50	66
Georgia	..	42	48	44	41	62
Florida	.	30	32	60	59	63
Alabama	..	52	66	60	53	62
Mississippi	..	48	63	60	57	64
Louisiana	..	53	68	60	45	60
Texas	..	55	71	59	42	60
Arkansas	..	57	68	63	63	69
Tennessee	..	64	69	65	74	74
Missouri	..	67	70	70	78	75
Oklahoma	..	46	63	53	48	63
California	..	88	88	91	88	91
Arizona	..	90	91	87	85	—
Other States	..	88	85	85	85	—
Average	..	54.1	67.2	57.0		
New Mexico						

## FIRST GINNING REPORT OF THE AMERICAN CROP.

The Mission which recently visited the United States Cotton Belt pointed out in the cable from Texas that the forthcoming Ginning Report would not be any indication of the coming crop. As will be seen from the figures given below, Texas has ginned almost twice as much cotton as last year. The heavy ginning figures are due solely to the drought conditions which have caused the bolls to open prematurely, resulting in smaller quantity and inferior staple.

The first Ginning Report of the season, issued to-day by the Census Bureau, shows that up to September 1 a total of 1,141,000 bales of the current crop had been ginned, as compared with 806,000 bales in the corresponding period last year, 486,000 bales in 1921, and 352,000 bales in 1920. The feature of the return is the heaviness of the Texas ginnings, the State contributing 1,088,000 bales, against 565,000 bales, 415,000 bales, and 329,000 bales in the three preceding years. Oklahoma, with 5,000 bales ginned, also exceeded the returns of the past three years, but,

with these exceptions, all other important States show materially smaller figures. Georgia, with 20,000 bales, compares with over 141,000 bales at this time a year ago, Alabama ginned only 5,000 bales against over 55,000 bales, while Mississippi returns only 1,000 bales compared with nearly 11,000 bales a year ago. Louisiana shows 13,000 bales against over 14,000 bales, Arkansas 4,000 bales against nearly 5,000, Florida 1,000 bales against over 5,000, and South Carolina 2,000 bales against nearly 5,000 bales a year ago. California ginned 1,000 bales only against 51,000 last year. No returns were received from Arizona, Missouri, North Carolina, Tennessee, and Virginia. The total includes 52,000 round bales, against 26,000 last year, which is principally due to the increased number of improved round bale presses set up this season by Messrs. Anderson, Clayton & Co.; their new round bale has evidently been considerably improved and has given satisfaction to Continental spinners.

The following table gives details with comparisons :

		1923	1922	1921	1920
Alabama ..	..	5,000	55,680	12,968	1,574
Arizona ..	..	—	11	116	317
Arkansas ..	..	4,000	4,761	306	42
California ..	..	1,000	51	173	1,753
Florida ..	..	1,000	5,379	387	119
Georgia ..	..	20,000	141,107	47,863	13,913
Louisiana ..	..	18,000	14,366	2,743	2,789
Mississippi ..	..	1,000	10,085	4,144	840
Missouri ..	..	—	68	11	—
North Carolina ..	..	—	878	77	7
Oklahoma ..	..	5,000	3,487	1,221	63
South Carolina ..	..	2,000	4,704	1,160	704
Tennessee ..	..	—	55	2	—
Texas ..	..	1,088,000	364,057	414,616	329,457
Virginia ..	..	—	—	—	—
(Other States ..	..	1,000	—	—	—
Total ..	..	1,141,000	806,189	483,787	351,389

### NORTH CAROLINA COTTON GROWERS' CO-OPERATIVE ASSOCIATION, RALEIGH, N.C.

The Publicity Department of the North Carolina Cotton Growers' Co-operative Association reports as follows : "The biggest bank in this country, The National City Bank of New York, goes on record endorsing without qualification the management of the North Carolina Cotton Growers' Co-operative Association. A. E. Bing, secretary and treasurer of the Association and John H. Boushall, representing the Citizens National Bank of Raleigh, have returned from New York City where they concluded arrangements with the National City Bank for a line of credit for the North Carolina Cotton Growers' Co-operative Association for the coming season of \$6,000,000 and at a very satisfactory rate. The officials of the bank expressed their vital interest in the co-operative marketing organization and stated that they were glad to aid financially in every way possible the North Carolina Cotton Growers' Co-operative Association.

They also told Messrs. Bing and Boushall that if they need any more money to come back to them. The extension of this credit in New York is an endorsement of the management of the Association and speaks emphatically for its financial standing in the Metropolis.

### COTTON CONSUMED AND ON HAND IN SPINNING MILLS AND IN OTHER ESTABLISHMENTS, AND ACTIVE COTTON SPINDLES.

(Linters not included.)

*Compiled by the Department of Commerce Bureau of the Census*

Cotton consumed, cotton on hand, active cotton spindles and imports and exports of cotton consumed, imported and exported for the 12 months ending July 31.

*(The statistics of cotton in this report are given in running bales, counting round as half-bales, except foreign cotton, which is in equivalent 500-lb. bales.)*

Locality	Year	Cotton on hand July 31			Cotton spindles active during July (number)
		Cotton consumed during 12 months ending July 31	In consuming establishments	In public storage and at compresses	
United States ..	1923	6,664,710	1,089,280	988,689	34,237,887
	1922	5,909,820	1,218,888	1,488,165	32,051,820
Cotton-growing States	1923	4,218,525	532,203	752,888	15,871,805
	1922	3,729,777	581,812	1,128,101	15,580,642
All other States ..	1923	2,116,185	557,027	185,801	18,366,082
	1922	2,180,048	687,076	365,064	16,471,178

\* Includes 86,308 Egyptian, 25,992 other foreign, 10,324 American-Egyptian, and 2,947 Sea-island in consuming establishments; and 51,148 Egyptian, 19,744 other foreign, 18,697 American-Egyptian and 4,070 Sea-island in public storage. Twelve months' consumption: 261,326 Egyptian, 80,862 other foreign, 65,128 American-Egyptian and 6,277 Sea-island.

Linters not included above were 44,775 bales consumed during July, 1923 and 55,502 bales in 1922; 127,418 bales on hand in consuming establishments on July 31, 1923, and 138,523 bales in 1922; and 35,876 bales in public storage and at compresses in 1923, and 54,587 bales in 1922. Linters consumed during twelve months ending July 31 amounted to 637,774 bales in 1923 and 639,033 bales in 1922.

### IMPORTS AND EXPORTS OF COTTON AND LINTERS

Imports of foreign cotton during 12 months ending July 31 (500-lb. bales).	Exports of domestic cotton and linters during 12 months ending July 31 (running bales).				
Country of production	1923	1922	Country to which exported	1923	1922
Total ..	469,954	363,465	Total ..	*4,864,027	*6,816,121
Egypt ..	329,835	233,729	U. Kingdom ..	1,287,552	1,768,965
Peru ..	21,185	38,758	France ..	641,578	768,184
China ..	50,240	15,563	Italy ..	496,636	509,718
Mexico ..	45,879	53,637	Germany ..	934,358	1,440,747
British India ..	22,163	10,348	Other European ..	622,860	697,823
All others ..	1,352	11,435	Japan ..	685,805	817,880
			All others ..	245,929	312,909

\* Figures include 9,100 bales in 1922, and 41,438 bales for the twelve months ending July 31 in 1923, and 132,027 bales in 1922.

## WORLD STATISTICS

The preliminary estimate of the world's production of commercial cotton, exclusive of linters, grown in 1922, as compiled from information secured through the domestic and foreign staff of the Department of Commerce is 17,755,000 bales of 478 lbs. lint, while the consumption of cotton (exclusive of linters in the United States) for the year ending July 31, 1922, was approximately 20,047,000 bales of 478 lbs. lint. The total number of spinning cotton spindles, both active and idle, is about 157,000,000.

## AMERICAN COTTON CROP REPORT.

*R. L. Dixon & Bro.,\* Dallas, Texas, cabled us on August 24 as follows :*

"The TEXAS crop made excellent start and had brilliant prospects all over State until last week of July. About this time South Texas received some fair rains, which have resulted in larger yields than last year in the South. Remainder of State, however, received no rain and the drought, which was accompanied by almost unprecedented temperature, caused disastrous deterioration and premature opening of bolls with result of poor staple. This condition still prevails in Central Texas and parts of East and North Texas. In West Texas and elsewhere in East and North Texas situation was relieved by rain between August 18 and 23. Especially in West Texas these rains were copious and will ensure very large yields in North Texas and East Texas; they will benefit young cotton and prevent opening of immature bolls. There are very few complaints of boll-weevil damage. With normal conditions from now on, our guess for Texas would be 3,800,000.

"OKLAHOMA crop is two to three weeks late on account of floods and rains which delayed much planting until the middle of June. This lateness may prove solution of crop, as when rains occurred this week cotton was young enough to revive after heat and drought of past two months. There are no boll-weevil complaints. Government estimates increase acreage Oklahoma 11 per cent. Our advices, however, indicate this increase abandoned beginning with June. With normal conditions from now on, we think Oklahoma should raise 800,000 bales."

SUPPLY AND DISTRIBUTION OF COTTON IN  
THE UNITED STATES

*Compiled by the Department of Commerce Bureau of the Census*

The following is the annual statement of the Department of Commerce upon the domestic supply and distribution of cotton for the year ending July 31, 1923. 6,664,710 bales of cotton, exclusive of linters, were consumed in the United States during the year, compared with 5,909,820 bales for 1922, 4,892,672 bales for 1921, and 6,419,734 bales for 1920. The exports of cotton, exclusive of linters, during the year amounted to 4,822,589 bales, compared with 6,184,094 bales for 1922, 5,744,698 bales for 1921, and 6,545,326 bales for 1920. The carry-over of cotton in the

\* The senior partner of this firm devotes special attention to the crop reporting service.

United States on July 31, 1923, was 2,087,919 bales\*, compared with 2,831,553 bales for 1922, 6,534,360 bales for 1921, and 3,563,162 bales for 1920.

Bales included above were: Consumed for 1923, 6,277 Sea-island, 65,126 American-Egyptian, 261,326 Egyptian, and 80,862 other foreign; held in consuming establishments, July 31, 1923, 2,947 Sea-island, 10,524 American-Egyptian, 86,508 Egyptian, and 25,992 other foreign; and held in public storage and at compresses, 4,070 Sea-island, 18,697 American-Egyptian, 51,446 Egyptian, and 19,744 other foreign. There were imported during the year 329,335 bales Egyptian, 21,185 Peruvian, 50,240 Chinese, 45,679 Mexican, 22,163 British Indian, and 1,352 other.

Cotton spindles in place on July 31, 1923, exclusive of doubling and twisting spindles, number 37,397,331, compared with 36,945,554 in 1922, 36,617,584 in 1921, and 35,834,463 in 1920, the increase during the past year being 451,777.

The following preliminary statement presents the several items of the supply and distribution of cotton in the United States for the 12 months ending July 31, 1923. The quantities are given in running bales, counting round as half-bales, except that foreign cotton is in equivalent 500-lbs. bales. Linters, the short fibre obtained by the oil mills from cotton seed, are not included:

SUPPLY								(Bales)
Aggregate	..	..	..	..	..	..	..	13,610,218
Stocks August 1, 1922, total	..	..	..	..	..	..	..	2,831,553
In Consuming Establishments, total	..	..	..	..	..	..	..	1,218,388
In Cotton-growing States	..	..	..	..	..	..	..	531,312
In all other States	..	..	..	..	..	..	..	687,076
In Public Storage and at Compresses, total	..	..	..	..	..	..	..	1,188,163
In Cotton-growing States	..	..	..	..	..	..	..	1,123,101
In all other States	..	..	..	..	..	..	..	365,064
Elsewhere (estimated)	..	..	..	..	..	..	..	123,000
Ginnings	..	..	..	..	..	..	..	0,729,306
Imported August 1 to July 31, 1923	..	..	..	..	..	..	..	469,954
To balance distribution	..	..	..	..	..	..	..	379,403
DISTRIBUTION								
Aggregate	..	..	..	..	..	..	..	13,610,218
Consumed August 1, 1922, to July 31, 1923, total	..	..	..	..	..	..	..	6,664,710
In Cotton-growing States	..	..	..	..	..	..	..	4,248,525
In all other States	..	..	..	..	..	..	..	2,416,185
Exported August 1, 1922, to July 31, 1923	..	..	..	..	..	..	..	4,822,589
Burned	..	..	..	..	..	..	..	35,000
Stocks July 31, 1923, total	..	..	..	..	..	..	..	2,087,919
In Consuming Establishments, total	..	..	..	..	..	..	..	1,080,230
In Cotton-growing States	..	..	..	..	..	..	..	332,203
In all other States	..	..	..	..	..	..	..	557,207
In Public Storage and at Compresses, total	..	..	..	..	..	..	..	938,689
In Cotton-growing States	..	..	..	..	..	..	..	752,888
In all other States	..	..	..	..	..	..	..	185,801
Elsewhere (estimated)	..	..	..	..	..	..	..	60,000

\* Owing to much reduced exports since spring of this year, the carry-over of cotton in U.S.A. on July 31, 1923 was, considerably larger than had been anticipated. (A. S. P.)




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## ENACTMENT OF LEVY FOR THE BRITISH EMPIRE COTTON GROWING CORPORATION.

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The English Cotton Industry Bill received Royal Assent on July 18, and has thus become law.

Under this Act the contributions to the British Empire Cotton Growing Corporation at the rate of 6d. on every bale of raw cotton imported, must be paid.

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## Progress of Cotton Growing in India

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*By B. C. BURT, B.Sc., M.B.E., F.C.S., Secretary, Indian Central Cotton Committee, Bombay.*

THE last number of "INTERNATIONAL COTTON BULLETIN" includes some extracts from the Agricultural Adviser's *Review of Agricultural Operations in India, 1921-22*, relating to the work of the Indian Central Cotton Committee and to the progress made during the year in cotton improvement. It may be of interest if the further developments which have taken place in several directions are briefly indicated.

In the first place the Bill for the restriction of cotton transport to prevent short staple and inferior cottons from being imported into superior cotton tracts for mixing purposes, has become law. This Act (The Cotton Transport Act, 1923) differs from the original recommendations of the Indian Cotton Committee in two principal respects. Firstly, it does not apply rigidly throughout India, but is brought into force in regard to specified areas which require protection by resolution, in each case, of the Local Legislative Council. Considerable difficulties would have arisen in the working of a rigid all-India Act, and there is more to gain by concentrating effort on the areas which really need protection. Secondly, the Act makes more definite provision for the regulation of transport by road, river or sea which, if left unregulated in certain tracts would probably defeat restrictions on movement by rail.

A notification has just been approved by the Bombay Legislative Council putting the Act in force in the staple cotton growing tracts of the Bombay Presidency, viz.: in the Surat District and part of the adjoining Broach District and in the whole of the southern Mahratta country, where the principal cottons produced are those known as Kumpa and Dharwar-American (saw-ginned Dharwar).

The Government of the Baroda State have also announced their intention of immediately passing a corresponding law and of co-operating fully with the Bombay Government in regard to those portions of the State which adjoin the Surat area. This is a most important decision as not only does the Baroda State produce some of the best cottons in India, but their territory is much intermingled with the Surat District. Similar action is being taken by the Rajpipla State which lies on the north-east border of the Surat District.

In two other Provinces also definite steps are being taken to define areas for protection under the Act.

The passing of the Indian Cotton Cess Act, by which the Indian Central Cotton Committee has been permanently incorporated, has also placed it in a position to take active measures for the furtherance of research work on cotton, more particularly on those problems affecting more than one Province. The need for more such research is universally admitted and need not be emphasized here.

It is not perhaps so widely known as is desirable that since the Indian Cotton Committee of 1917-18 reported the Provincial Departments of Agriculture have made considerable progress in the improvement of the supply of staple cotton in India—the term "staple" being used in its Bombay sense to mean cottons of  $\frac{7}{8}$  in. staple and upwards, as distinct from the very short staple Indian cottons.

In the Bombay Presidency the Agricultural Department have succeeded to a very great extent in ousting the short staple cotton which at one time invaded the Surat District. The area of cotton in the Surat District this season was 131,000 acres, and the crop was estimated at 38,000 bales, practically the whole of which is now valuable stapled cotton. At the same time there has been an improvement in class; the basis for tenders under the East India Cotton Association rules now being a full grade higher than it used to be. A portion of the adjoining Broach District has also come within the sphere of these operations, and the Agricultural Department of the Baroda State has been adopting a similar policy. As a result genuine Surat and Navsari cottons are now extremely useful cottons to spinners.

The cottons known as Kumpa-Dharwar are perhaps better known in India than in England. Kumpa cotton is botanically closely allied to Surat cotton, though differing somewhat in commercial characters. Dharwar is Dharwar-American cotton and closely allied to Punjab-American. In respect to both of these cottons improvement has taken place along two lines. A pure strain of Kumpa cotton of improved staple and ginning percentage is now rapidly displacing the mixed cotton in general cultivation. Similarly an improved strain of Dharwar-American of distinctly superior staple and ginning percentage is replacing the ordinary variety which was a mixture of several types. All work in this

part of Bombay is taking place largely through the medium of Co-operative Societies which not only organize the sale of seed to members, but organize auctions for graded *kapas* (seed cotton) through which the grower receives adequate prices for the improved varieties. In addition, one of these Co-operative Societies has been carrying out a campaign for clean cotton picking with considerable success. Kumta cotton in the past has been somewhat prejudiced by its leafiness, a fault which is now being remedied.

In the Punjab, the production of Punjab-American has now been fairly stabilized at some 1,000,000 to 1,400,000 bales per annum, depending on the season. The area is lower than the maximum reached in 1920 when it seemed probable that the area was somewhat larger than the canal supply justified. A new selection, 285 F, with a staple considerably better than 4 F at its best, has made considerable headway, particularly in the Montgomery District. There is not the slightest doubt that the best Punjab-American cotton is a very valuable addition to the supply of good stapled Indian cottons.

In Madras, the steady replacement of the old mixed Tinnevelly type by the Agricultural Department's selected Karunganni has steadily progressed, the area and yield last year being estimated at 2,000,000 acres, or say 50,000 bales. Karunganni cotton is also extending in other districts, the production being estimated at a minimum of a further 20,000 bales replacing, in some cases, unirrigated Cambodia with advantage. The Cambodia crop, just picked, was estimated at 3,005,000 acres and 1,018,000 bales. The present tendency is to restrict the area under Cambodia cotton to irrigated cultivation, and this is decidedly a wise move. Good irrigated Cambodia is a cotton of excellent staple and class, and much valued. Of the above area, 22,900 acres are under improved strains of Cambodia with a better staple and yielding 25 lbs. per acre more than the ordinary.

In the northern and western areas also improved types have been developed to a considerable extent, the area last recorded being 21,300 acres.

It will thus be seen that in most of the tracts growing staple cotton in India, definite progress has been made in maintaining and improving the type. The measure of success ultimately attained in increasing the supply of staple cottons in India will largely depend on the margin in prices between such cottons and the ordinary run of Indian short staple cottons. Prior to the war these margins were by no means adequate, but have since been more satisfactory and it is hoped that this position will be maintained. It would appear that the present acute shortage of cotton with which the world is faced is mainly in respect to cottons of  $\frac{7}{8}$  in. to 1  $\frac{1}{2}$  in. staple, and to this deficiency India can undoubtedly make an important contribution. From a statistical standpoint there is not the slightest doubt that India is producing too large a proportion of very short staple cottons and an insufficient supply of cottons suitable for the general world's markets. The rapidity with which this weakness can be remedied will depend in no inconsiderable degree on the market support given by users of medium cottons who, in the past, have been apt to assume that the American supply of cottons below 1  $\frac{1}{2}$  in. staple would always be adequate.

A representative exhibit of Indian cottons will be shown at the Empire Exhibition both in the Indian Court and on the Empire Cotton Growing Corporation's stand.

## Cotton Growing in Further India and in Portuguese Africa.

In an article under the title of "Notes on some Minor Cotton-Growing Countries," which appeared in the June number of this Bulletin, an attempt was made to furnish some details concerning the progress of cotton growing in the Belgian Congo, in French Western and Equatorial Africa, in Italian Somalia, and in Argentina. The list of minor cotton-growing countries is a long one, and still leaves a selection which may perhaps prove of interest. Cultivation is in various stages of development in Further India, a generic designation which covers the Dutch East India Islands and French Indo-China. In Portuguese Africa there are only one or two localities where any real attempt at cotton growing has been made, and in Madagascar the cotton crop is still in the future so far as any export is concerned. But each of these colonies of European powers has its own distinguishing peculiarities and provides a contrast with better-known regions. One may form the opinion that the French Government is very much in earnest about creating new fields for cotton growing; the lively interest displayed by the authorities in Indo-China and in Madagascar is fairly good evidence of this interest in the "Metropole"—the favourite term for France in her colonial circles. There is not the same enterprise apparent in the dependencies of Holland, where much more is habitually left to private initiative than is the case where French is spoken. One may judge that uncertain climate provides a limitation to cotton growing in Java and Sumatra, except in a few favoured spots. There are also so many profitable alternatives for agriculturists in those islands. Some efficiency is to be observed in the Mozambique territory of Portugal, but in Angola the details available do not indicate much activity except in the issue of decrees. Portuguese statistical publications give great prominence to the names and duties of the officials, but say little as to the results of their work.

### INDO-CHINA.

The chief sources of information consulted for details of cotton growing in Indo-China are the work by M. Flacourt (Saigon, 1918), entitled "*Possibilités du Cambodge au point de vue cotonnière*," and the successive "*Bulletins économiques de l'Indo-Chine*," particularly those of July-August, 1920 and 1922 (Hanoi), Nos. 143 and 155.

It appears to be generally admitted that the province of Cambodia is the chief effective cotton-growing region in Indo-China; the main portion of this crop is of the strain favourably known in India as "Cambodia," but there are other and less satisfactory varieties still cultivated within the province. An experiment station is established at

Kraban, where every possible aid is afforded to the growers, who mostly act under European supervision too.

In the province of Anam, native cultivation prevails unchecked ; the aggregate area in 1921 was estimated at 170,000 acres. but it is only when the season is really favourable that the mixed seed utilized gives any results of interest to international trade. Usually the Anam and Song-lay produce goes into domestic consumption only.

Cotton is grown in Cambodia chiefly in the neighbourhood of the Meikong River, and the date of planting is dependent upon that of the subsidence of the river floods. Ordinarily work can begin in October, continuing till December. The dry season is from December till March, when heavy rains set in. As fully four months are required for maturing the cotton crop these rains frequently curtail the picking period. In 1922 this crop was partially destroyed by March rains, which occurred when bolls were just ripening, and the result was general shedding. Endeavours have been made to grow cotton on the Terres Rouges at a higher level away from the Meikong floods. Planting can there be initiated in July, so that packing in January and February follows as a matter of course. There is, however, no great extent of the Terres Rouges that can be spared from other crops, and in 1920 this locality suffered from drought with unfavourable results. Again, in September, 1921, a very hot period prevented a continuance of planting, and left the area on the Terres Rouges at only 4,000 acres.

The quantity of cotton grown in Indo-China is however considerable, taking the average of years. Exports have latterly been to Japan in the main, and a large proportion of these were shipped as seed cotton without ginning. According to "*l'Indo-Chine aperçu économique*" (Paris, 1923) two large ginneries are in operation in Cambodia. That under Chinese direction can deal with 6,000 tons of seed cotton per annum, turning out about 2,000 tons of lint, 1,600 tons of cotton seed and 300 tons of oil. The French ginnery is also an extensive one.

The quantity of seed cotton grown in 1921-22 was about 2,500 tons only, while in 1913-14 it had reached 8,000 tons. The yield in lint has therefore varied between 800 and 2,500 tons or so. The red boll-worm is mentioned as doing much damage in 1921-22.

According to the most recent advices very great interest in cotton is a feature of the Government programme in Indo-China. The knowledge that it can be grown successfully is to be made the most of, and a series of experiments in all likely districts has been set on foot. These experiments are expected to take some time to develop into any reasonable certainty of increased production. However, the order of the day in all suitable areas for cotton growing has evidently gone forth to every French colony, and probably Indo-China may be made, in certain sections, one of the most progressive of all those where floats the French tricolour.

The Government of Indo-China has offered to purchase a large number of the monograph, "The Cotton-Growing Countries," for distribution

among their agricultural staff. This Government may be commended as up-to-date.

#### THE DUTCH EAST INDIES.

The chief authorities on the conditions of cotton growing in the Dutch East Indies are colonial publications dealing somewhat fully with the general question and containing interesting information on the particular difficulties arising from climate and from the methods practised by native growers. The Colonial Government and the corresponding bureau at the Hague have furnished many details incorporated in the following summary :—

It has been for nearly a century the subject of experiment by the Netherlands Government to find a number of localities in their Indian Archipelago suitable for cotton growing. The island of Borneo was the site of one of the earliest of these experimental stations. Sea Island strains flourished there for a year or two, but no permanent results followed. It may just be mentioned that in the State of Brunei in North Borneo the report for 1921, published in London, tells of a fairly successful cultivation of Egyptian cotton on a small scale in that British protectorate.

During the last 20 years the chief production of cotton in these colonies has been at Palembang in Sumatra, where a quantity varying from 4,000 to 6,000 tons of seed cotton is grown annually. Planting in Palembang begins in March, as soon as the risk of inundation of the cotton fields is at an end, and April is the chief month when the seed goes into the ground, four or five grains together, to be thinned out when the plant shows above ground, then hoed and cleaned during eight or nine weeks. Picking begins about 15 weeks after planting and should continue for a month or more. It is very necessary to select for picking the exact stage of maturity when the boll has turned brown, but the native loses much of the advantage thus gained by gathering boll and all, to save time. As to climate the east monsoon is generally dry, except for a few favouring showers, and should last for two or three months ; but the date of arrival of the west monsoon, bringing heavy rains, is uncertain and the cotton crop is frequently prejudiced by stormy weather occurring during its growth.

Various species of cotton are grown, but the chief variety at Palembang is *gossypium obtusifolium*, with staple about four-fifths of an inch. In Java considerable areas are usually under cotton, entirely of native cultivation and very uncertain as to yield. Anything from 3,000 down to 1,000 tons of seed cotton may be the result of the Java crop. Two varieties, Kapas Djova and Kapas Djantoc, are grown and some samples reaching Liverpool have been described as similar to Chinese, white and very rough, with staple not over five-eighths of an inch. In the Island of Flores a small quantity of Caravonica (tree or perennial cotton) is grown and provides two pickings in the year for several seasons.

Ginning has been carried out in machines worked by the feet, dealing with no more than about 9 lbs. of lint in the day. The consequent delay results in seed cotton forming the principal export, chiefly to Japan with some share to France. As nearly the whole of the data are furnished in seed cotton terms, this basis has been taken in giving some ideas to the production of the Dutch East Indies.

Plant maladies are not very destructive, but wild animals, such as apes and pigs, do a considerable amount of havoc in the cotton fields.

#### MADAGASCAR.

According to a note in the *Information Agence Economique* (Madagascar) for November, 1922, the Governor-General of the island has decided upon some definite and important action in favour of the development of cotton growing in Madagascar. The population of the colony is about 3,500,000, and most of the inhabitants are much more advanced in civilization than are the native races of East Africa in general. A vast extent of fertile land on the west side of the island is suitable for cotton production, in the opinion of the Governor, and this is especially the case with the alluvial river valleys. Previous experiences of cotton growing were unsuccessful some 10 or 15 years ago, when a few bales of cotton were exported. The failure is ascribed to want of expert knowledge of the conditions, and it is now proposed to draw up a complete scheme for proper cultivation, including the supervision by Europeans of the small native holdings projected, in order that due attention may be given to all the factors involved in the enterprise. The whole details of the scheme have been already submitted for their consideration to the French spinners, and a strong appeal has been made that they should afford all possible aid in carrying out the plans. The Government of Madagascar has informed the associations that they may count upon cordial support for all experimental undertakings, also that the most careful consideration will be bestowed on every suggestion made to the Government. The Government of Madagascar is much interested in obtaining information as to cotton growing and has taken a number of copies of the monograph, "The Cotton-Growing Countries."

Imports of cotton goods into Madagascar in recent years have been provided in about equal quantities from three sources : France, England, and countries within the British Empire.

#### PORtUGUESE EAST AFRICA—MOZAMBIQUE TERRITORY.

The cultivation of cotton entirely by native labour has been carried on in the Mozambique territory for a number of years under the auspices of the Mozambique Company. The exports had reached about 800 bales by 1917, but in that year a native rebellion destroyed the crop, and it was only when the German rule in Tanganyika came to an end that these countries settled down to cotton growing once more. According to a report furnished to the Imperial Institute (Bulletin, Vol. XIX, No. 4, London) the Mozambique Industrial and Commercial Company was formed in 1918 in order to purchase native-grown cotton from the territories of the Mozambique Company. Cultivation had up to that time been limited to the Chamba district, and to lands annually flooded by the Zambezi River. These conditions prevail also as regards a portion of the Nyasaland cotton crop, grown in the Karongo district, not far distant and subject to similar annual floods. The new company very soon extended its operations to the higher ground and has found the development successful. The cotton now grown is the result of careful selection from American and Nyasaland seed, the original basis was "Allen's Improved," favourably known in the history of cotton growing in Uganda and Nyasaland. The Company established ginneries at Chamba in 1918, and are in a position to deal with all the cotton grown.

The exports have been about 1,300 bales annually since 1919, according to data furnished by the Territorial Government. The lint is of good colour and generally averages about 1 in. staple.

The railway recently opened from the Zambesi River to Beira, also in Portuguese territory, has much simplified transport from the plantations of the Mozambique, as well as from Nyasaland, and this should encourage the production of cotton in that part of East Africa.

#### PORTUGUESE WEST AFRICA—ANGOLA.

This is an immesne area all within the tropics, with seasons somewhat similar to the southern portion of the Belgian Congo, with which it is coterminous for many hundreds of miles.

According to the report of H.B.M. Consul-General at Loanda to the Department of Overseas Trade (London, 1923) the coast districts have a very small rainfall, excepting those near the mouth of the Congo River, where the downpour is from 40 to 60 in. per annum, and this quantity may also represent that of the interior plateaux, which vary in altitude from 3,000 to 8,000 ft.; a cool ocean current along the coast and the height of the interior result in an absence of any excessive continuous heat. Rains occur between September and May, the rest of the year is dry and cool.

Cotton cultivation has received much encouragement from the colonial authorities; beginning from 1845, when all natives gathering 350 lbs. of cotton yearly were exempted from military service.

During the American Civil War annual exports reached 1,000 tons, but by 1903 this trade had almost ceased. About 200 tons were shipped in 1920, 400 tons in 1921, and nearly 450 tons in the first half of 1922 almost exclusively to Lisbon.

Three lines of railway penetrate into the interior; that from Massamedes is a short one, but the line from Benguela, when completed, will cross the whole colony and will reach Katanga in the Belgian Congo.

The line from Loanda is about 300 miles in length, the chief cotton centre is at Catete, about 60 miles from the port along this railway.

Other localities of cotton production are at Amboin and in the Benguela district.

The native population is dense only in a few localities, but amounts to about five millions, according to the Government estimates. Professor Todd, in "The World's Cotton Crops" (London, 1915), mentions that the Government was endeavouring to make it compulsory on each native hut owner to plant at least one acre of cotton. The cotton grown is chiefly from American Upland seed. A quality rather superior to middling is produced in good seasons with adequate rainfall. Apart from American Upland, which is said to do best in its second year of growth, the perennial *gossypium peruvianum* and several indigenous types are established in Angola.

Appropriate details of cotton growing in many other countries are furnished in the monograph, "The Cotton-Growing Countries," already quoted, which is issued by John Heywood, Limited, Manchester. I may be excused for recording that this work has been recommended to students officially by the College of Technology of the Manchester University and to the Department of Commerce in that of Liverpool.

JOHN H. HUBBACK.

# China's Cotton Production, Yarn and Cloth Consumption.

## PRODUCTION OF RAW COTTON IN CHINA.

**T**HE development of the spinning industry in China can be traced by the following figures, which, however, cannot be taken as perfectly correct, but can be considered on the whole as trustworthy.

*(In 1,000 spindles and in 1,000 piculs cotton)*

	Number of Working Spindles Estimated	Quantity in which Raw Cotton Consumed	Of the above Consumption Amount of Chinese Raw Cotton	Of the same Consumption Amount of Foreign Raw Cotton	The Percentage of Consumption of Foreign Raw Cotton against the Total Consumption Amount
1910	600	1,800	1,600	210	12
1911	620	1,960	1,920	40	2
1912	640	1,920	1,640	280	15
1913	700	2,100	1,905	135	6
1914	800	3,100	2,260	140	6
1915	900	2,700	2,340	360	14
1916	1,000	3,000	2,500	410	14
1917	1,100	3,200	3,000	300	9
1918	1,200	3,400	3,110	190	5
1919	1,230	3,890	3,450	240	7
1920	1,500	4,500	3,820	680	15
1921	1,750	5,250	8,570	1,680	32
1922	1,900	5,700	4,200	1,500	26
1923	2,500	7,500	—	—	—

In the past 14 years the number of spindles has quadrupled and the amount of cotton consumed accordingly showed a great increase. Although the production of Chinese raw cotton has increased it has not maintained a development parallel with that of the spinning industry.

The following table shows the production and movement of Chinese cotton :

	Amount of Chinese Raw Cotton Exported or Transported from the place of Production. <i>In 1,000 Piculs</i>	Amount of Chinese Raw Cotton Exported. <i>In 1,000 Piculs</i>	Amount of Chinese Raw Cotton Consumed in China. <i>In 1,000 Piculs</i>	Percentage of Domestic Consumption against Amount of Chinese Production. <i>Percentage</i>	Amount of Foreign Raw Cotton Imported. <i>In 1,000 Piculs</i>
1910	1,340	1,250	90	7	210
1911	990	880	110	11	40
1912	1,200	810	200	32	280
1913	930	740	210	22	135
1914	770	675	95	12	140
1915	1,230	726	504	41	860
1916	1,310	851	639	44	410
1917	1,220	822	689	45	300
1918	2,190	1,290	900	41	190
1919	2,020	1,070	930	46	240
1920	870	880	400	56	680
1921	1,440	610	830	58	1,680
1922	—	—	—	—	1,500

While the amount of raw cotton produced in China which has been exported from several ports is tending downward, the amount consumed in that country which reached not more than 90,000 piculs in 1910, however, increased to 830,000 piculs in 1921. Moreover, as will be seen from the above tables, the consumption of foreign raw cotton against the total consumption by the Chinese spinning industry is likely to increase gradually, the percentage of the former against the latter being 12 per cent. in 1910, and 32 per cent. in 1921. The increase in the consumption of foreign raw cotton may be partly ascribed to the development of the Chinese spinning industry, the growing demand of which has caused a shortage of the material produced in the country, but is chiefly attributable to the fact that the Chinese raw cotton is not fit to be spun into fine thread, though the demand for such thread as in 20's, 32's or 42's has grown in China.

As to the amount of the production of raw cotton in China, no reliable report can be obtained, but a general idea may be formed from the statistics published by the Agricultural and Commercial Department in Peking. The figures subjoined are based upon the statistics in 1916, the doubtful points being corrected and modified.

				Area of Plantation (In 1,000 se)		Amount of Raw Cotton Production (In 1,000 piculs)
<b>Northern part of :—</b>						
Peking	..	..	..	86	..	6
Chihli	..	..	..	4,237	..	932
Fengtien	..	..	..	316	..	9
Shantung	..	..	..	1,469	..	316
Honan	..	..	..	1,745	..	236
Shansi	..	..	..	1,534	..	157
Kiangsu	..	..	..	10,023	..	2,273
Anhwei	..	..	..	605	..	156
Kiangsi	..	..	..	435	..	98
Chekiang	..	..	..	860	..	214
Hupei	..	..	..	8,810	..	950
Hunan	..	..	..	882	..	113
Shensi	..	..	..	2,856	..	288
Sinkiang	..	..	..	420	..	68
Szechwan	..	..	..	345	..	46
Kwantung	..	..	..	58	..	11
Kwangsi	..	..	..	50	..	11
Yunnan	..	..	..	60	..	8
<b>Total (in 1916)</b>	..	..	..	<b>29,263</b>	..	<b>5,887</b>

**NOTE.—**The amount of raw cotton obtained from 100 kin of cotton seed is commonly reckoned to be 35 kin, but in calculating China's production in 1916, we assumed the amount as 30 kin per 109 kin of the cotton in the seed.

As is shown in the foregoing table, the area for growing cotton plants covers 29,263,000 se, while the production amount reaches 5,887,000 piculs, 50 per cent. of which is consumed for domestic purposes, thus about 2,940,000 piculs remain for spinning. In 1916 the raw cotton that was estimated by the Department to have been consumed for spinning amounted to 2,400,000 piculs, and if we subtract 360,000 piculs of raw cotton which was imported for spinning there remains 2,040,000 piculs we may assume to be the consumption amount of the raw cotton produced in China for spinning. There seems, therefore, to be a little difference between the figures based on the statistics of China's Agricultural and Commercial Department and the figures calculated by us, but in 1921 the estimated consumption amount was 4,500,000 piculs, and

the amount of raw cotton that was imported for spinning reached 1,680,000 piculs, so that the total amount of consumption of the raw cotton produced in China can be calculated to be 2,820,000 piculs, which almost approaches the figures 2,940,000 piculs.

In short, the average yearly cotton crop in China amounts to about 6,000,000 piculs, and the quantity to be consumed for spinning purposes is between 2,500,000 and 5,000,000 piculs.

In the next place, we shall compare the area for growing cotton plants and the amounts of the cotton crops of the cotton cultivating countries in the world.

	Acre	Total Crop (In the Units of Bale containing 400 lb.)	Cotton Crop against one Acre L.b.	Amount Exported Lb.
America .. ..	84,852,000 (1922)	12,250,000 (1921)	140	7,900,000 (1921)
India .. ..	18,284,000 (1921)	4,480,000 (1921)	98	1,890,000 (1921)
China .. ..	4,876,000 (1916)	1,943,000 (1916)	159	208,000 (1921)
Egypt .. ..	1,341,000 (1921)	817,000 (1921)	94	—

According to the statistics published by the Chinese Agricultural and Commercial Department, the arable area covers about 1,473,194,000 se, of which not more than 29,263,000 se is suitable for cotton growing, or a percentage of only 1.99. Therefore it may not be a difficult task to extend the lands for cotton growing, and if the Chinese devote themselves to the improvement of their cultivating methods, they will not fail to realize four or five times the present output.

The arable lands and the areas devoted to cotton growing both in China and America are compared in the following table :

	The Aggregate Areas	Arable Land	Land for Cotton Growing	Amount of Raw Cotton Exported
	Square Miles	(In 1,000 acres)	(In 1,000 acres)	(In 1,000 lb.)
America .. ..	3,573,000	583,100 (1922)	84,852 (1922)	9,870 (1921)
China .. ..	3,871,000	219,400 (1916)	4,876 (1916)	208 (1921)

Though China surpasses America in the extent, her arable land is not more than 38 per cent. of that of America, and the land suitable for cotton growing in China is less than 2.3 per cent. of that of America.

Despite the reasonable expectation that the cotton growing enterprises in China should have been more active, there is little sign of improvement in this line, which may be explained as follows :

No industrial policy is yet established owing to the instability of the Chinese Government, and the Act for the encouragement of cotton growing, promulgated in 1914, has become little better than a dead letter.

#### CONSUMPTION OF COTTON TISSUES IN CHINA.

If the total amount of the internal production of cotton yarns and that of the foreign supply can be regarded as the approximate amount of the total cotton yarn consumption in China, it may be clearly seen in the following table how the market for cotton manufactures is yearly advancing:

	Chinese Yarn	Imported Yarn	Total
	Piculs.	Piculs.	Piculs.
1910	1,050,000	2,300,000	3,350,000
1911	1,050,000	1,800,000	2,850,000
1912	800,000	2,300,000	3,100,000
1913	1,200,000	2,700,000	3,900,000
1914	1,600,000	2,600,000	4,200,000
1915	1,600,000	2,600,000	4,200,000
1916	2,500,000	2,400,000	4,900,000
1917	2,600,000	2,000,000	4,600,000
1918	2,700,000	1,100,000	3,800,000
1919	3,800,000	1,400,000	4,700,000
1920	4,000,000	1,900,000	5,900,000
1921	4,500,000	1,200,000	5,700,000

In addition to the increase in cotton manufactures as indicated by the yarn consumption shown in the above table, there is to be taken into account the large quantity of cotton manufactures imported yearly into China.

While the volume of China's import trade in yarns is yearly on the decrease, its value tends to increase, and this fact is evidence that in recent years the import is almost restricted to fine cotton yarns. So it is with the case of cotton tissues imported into China.

Thus it can safely be said that China's spinning industry has reached the stage of self-sufficiency and is making great strides in its development. But China's consumption of cotton tissues is ever-increasing, and cotton manufactures cover the largest portion of China's import trade.

	Cotton Yarns	Cotton Tissues	Total	Total Import Value	Percentage
1918	71,061	111,358	182,419	570,112	32 per cent
1914	66,985	113,342	188,328	569,241	32 "
1915	67,107	82,192	149,800	454,475	33 "
1916	60,179	75,500	135,879	516,406	26 "
1917	60,142	98,807	158,950	549,518	29 "
1918	52,072	90,308	151,380	554,808	28 "
1919	74,899	134,886	209,786	646,997	32 "
1920	77,429	269,384	246,813	702,250	34 "
1921	64,708	143,959	208,668	906,126	23

In 1867 the value of cotton yarns and tissues imported constituted 21 per cent. of the total import trade.

The following tables show the shares of the main producing countries in China's importation of yarns and tissues in nine years ending 1921:

#### CHINA'S IMPORT TRADE OF COTTON YARNS WITH VARIOUS COUNTRIES.

	India	Japan	England	Hongkong	Others	Totals
	Piculs.	Piculs.	Piculs.	Piculs.	Piculs.	Piculs.
1918	1,330,567	1,800,921	5,128	9,682	38,063	2,685,362
1914	1,180,909	1,499,226	4,810	12,715	55,681	2,711,791
1915	1,179,378	1,452,065	—	12,836	48,741	2,685,528
1916	1,068,828	1,351,006	—	1,944	17,824	2,438,079
1917	955,707	1,065,444	51	12,851	10,587	2,085,251
1918	860,968	745,959	—	451	7,245	1,114,618
1919	888,113	580,917	66	298	15,844	1,385,238
1920	661,688	611,249	13,265	318	14,672	1,301,182
1921	516,880	701,208	18,571	699	17,161	1,240,520

## CHINA'S IMPORT TRADE OF COTTON TISSUES WITH VARIOUS COUNTRIES

	England	Japan	U.S.A.	Others	Totals
	Pieces	Pieces	Pieces	Pieces	Pieces
1913	11,705,426	5,716,594	2,281,123	101,719	19,864,662
1914	10,172,800	7,727,806	1,040,100	117,900	19,358,696
1915	7,591,178	5,717,168	637,616	202,121	14,148,413
1916	5,153,573	5,588,895	418,181	346,920	11,802,572
1917	4,897,411	8,045,810	71,531	647,725	13,162,488
1918	2,634,432	7,007,188	100,831	678,529	10,421,303
1919	4,897,506	7,558,668	622,406	1,531,075	14,130,553
1920	5,478,530	6,839,503	368,583	800,520	13,182,138
1921	3,858,105	5,815,963	626,233	180,431	10,280,731

According to the first table, Japanese yarns were 48 per cent. of the total volume of China's import of the goods, while the Indian yarns stood at 49 per cent. of the total volume in 1913, and in 1918 the former stood around 67 per cent. and the latter around 32 per cent. Again, in 1921, Japanese cotton yarns exported to China were 56 per cent. of the total volume imported and the Indian export was 41 per cent.

The second table shows that in 1913 the English cotton tissues amounted to 11,700,000 pieces, Japanese tissues to 5,710,000 pieces, and the American goods to 2,280,000 pieces. But Japanese manufactures have succeeded in extending their outlet with the consequence that in 1918 they came to hold the first position on the list amounting to 7,000,000 pieces (67 per cent.), followed by English manufactures, which were exported to the volume of 2,630,000 pieces (25 per cent.), and the American goods reaching 100,000 pieces (9 per cent.). In 1921 Japanese goods amounted to 5,180,000 pieces, the English 3,350,000 pieces and the American 620,000 pieces, the percentages against the total volume of the China's import trade of cotton tissues being 56 per cent., 32 per cent. and 6 per cent. respectively.

In conclusion, the article emphasizes the desirability of Japanese manufacturers improving the quality of their products in order to compete with the United Kingdom and United States of America in the Chinese market. (*Bulletin, Tokio Chamber of Commerce.*)

## COTTON PRODUCTION IN CHINA

(Table supplied from a Japanese source).

	COTTON AREA (Mow)*			
	1919	1920	1921	1922
Chihli	6,897,000	4,391,032	4,709,963	4,351,798
Shan Tung	3,218,000	482,830	2,333,190	3,584,707
Shensi	486,820	615,240	695,025	839,288
Honan	1,417,654	—	856,000	3,047,144
Shensi	—	1,288,650	2,405,910	1,867,200
Kiangsu	19,278,307	12,474,700	11,812,800	9,805,978
Chekiang	—	1,270,100	1,199,000	1,098,000
Anhwei	762,600	1,195,695	1,099,000	1,147,950
Kiangsi	—	898,850	236,650	361,680
Hupeh	—	6,269,700	2,849,100	7,612,900
Total	81,559,881	28,327,297	28,216,438	33,164,595

\* Mow—1/10th of an acre.

		COTTON YIELD (Picul)			
		1919	1920	1921	1922
Chihli	...	2,683,753	1,022,210	1,819,314	1,295,119
Shan Tung	...	894,558	126,070	304,077	1,005,230
Shensi	...	201,831	64,996	248,737	164,114
Honan	...	427,633	—	219,400	555,036
Shensi	...	643,000	293,967	429,967	476,000
Kiangsu	...	2,763,160	3,022,210	1,283,660	2,446,650
Chehkiang	...	264,900	231,106	308,760	98,300
Anhwei	...	125,383	291,975	163,830	154,833
Kiangsi	...	105,000	97,860	45,325	84,623
Hupch	...	1,207,000	1,580,000	615,150	2,020,850
Total	...	9,316,390	6,730,403	5,638,220	8,310,357

\* 1 Picul = 133½ lbs.

## RELATION OF LENGTH OF COTTON FIBRE TO QUANTITATIVE YIELD.

It has been known generally that the short fibres yield a larger crop than long fibres, and for this reason the folly of beginners in cotton growing trying to grow always long staple cotton has frequently been pointed out. Recently a young Brazilian student, Mr. L. de Freitas Machado, has made exhaustive experiments in the Mississippi Delta as to the relation of length of fibre and the yield per acre, and the following table gives his interesting result, which amply confirms the previous conception.

### LENGTH OF FIBRE AND YIELD.

RESULTS FROM FOUR EXPERIMENTAL STATIONS IN MISSISSIPPI DELTA, 1921-22.  
(As per experiments undertaken by Mr. L. de Freitas Machado, Rio de Janeiro.)

LENGTH OF FIBRE Inches	Millimetres	+ or - from Basis-Yield	No. of varieties represented in each class	Average experiments with the varieties
Below $\frac{7}{8}$	21.87	+10.9%	37	20
$\frac{7}{8}$ to 1	23	basis	210	37
1 $\frac{1}{16}$	26.98	-5.5%	137	33
1 $\frac{1}{8}$	28.12	-9.6%	115	33
1 $\frac{1}{8}$ full	28.12 full	-15.3%	62	21
1 $\frac{1}{8}$	30.16	-16.2%	143	20
1 $\frac{1}{8}$ full	30.16 full	-21.6%	49	18
1 $\frac{1}{4}$	31.25	-32.0%	35	23
1 $\frac{5}{16}$	32.81	-29.0%	18	12
1 $\frac{3}{8}$	34.37	-37.2%	15	14



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# Cotton Mill Notes.

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## The 48-Hour Week

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By HAROLD CLIFF, Secretary of the Oldham Master Cotton Spinners' Association, Ltd.

**A**T the eleventh International Cotton Congress held at Stockholm in June, 1922, the following resolution was passed :

"That this Congress, having considered the papers presented upon the effect of the 48-hour working week and having discussed the whole position, is convinced that the 48-hour working week which has been introduced in various countries either by law or by agreement with the labour organizations has proved to be economically unsound and detrimental to the best interests of both employers and operatives."

This conclusion was arrived at after nearly three years' experience of the effect of the reduction of the working hours. In the twelve months which have elapsed since the Stockholm Congress additional experience has emphatically confirmed the opinion then expressed.

Great Britain, which has rigidly maintained its reduced hours, has seen its cotton industry continually and increasingly depressed. The Southern States of America, which have continued to work the longest hours of all the nations except the Asiatic, have experienced prosperity and unprecedented expansion. There may be other economic causes which have contributed to heighten this contrast, but it demonstrates the tremendous influence of this question of working hours.

Bastiat, the French economist, truly says : "Commerce resolves itself into barter, products for products, services for services." In other words, labour is exchanged for labour. When England reduced its hours of labour from 55½ to 48 it was necessary that it should continue to receive in exchange for 48 hours the same volume of productive labour that it previously received for 55½ hours if the workers were to enjoy in the same degree the benefits of their exertions.

But how is this to be accomplished ? Not suddenly nor by mere legislative action. The collier who hews a quantity of coal for which he formerly received in exchange seven yards of cotton cloth now receives only six yards. He is immediately rendered poorer by the reduced hours of the cotton weaver. The collier's hours are also restricted, so that he cannot hew the same quantity of coal that he exchanged for his cotton cloth and so the cotton weaver is also impoverished.

The whole world reduces its hours of labour, and all humanity suffers to the extent of the lessened products of labour which are available for distribution. Nor will it be restored to its former state of comfort and well-being until the genius of man by invention and scientific research has increased the results of his efforts and coaxed Nature into surrendering more of her hidden reserves.

Great and noble were the ideals which the nations set before themselves at the conclusion of the world war when by the Treaty of Versailles they called together an International Labour Conference in 1919. They were thrilled to their innermost fibres by pity for the wounds and

sufferings inflicted on their peoples. To ameliorate, to lighten, to equalize, to improve the conditions of human labour! What a rôle to strike the chord responsive in the heart and mind of man! What a harvest of blessings to be garnered for the welfare of every one of God's creatures!

Such a task is now before the International Labour Conference and will by its very nature ever be their task as long as life exists.

It is no mean triumph to have secured the adoption of the "principle" of the 48-hour week by about 50 nations. Let the conference continue its efforts until *all* the industrial nations of the earth are included. A matter of the deepest regret and a great obstacle to progress must be the fact that the United States of America have not yet seen fit to join the conference or subscribe to the "principle" of the 48-hour week.

Great expectations were raised from the fact that the first meeting of the conference was held in Washington and the Draft Convention completed under the presidency of the Secretary of State of the U.S. Government. A most powerful impetus will be given to accelerating the work of the conference when that nation decides to become a member.

But the attempt of the International Labour Conference to secure at one stroke a drastic reduction of the hours of labour by its nation members is unfortunate. It looks like trying to gather the fruit before it is ripe. The goose which lays those golden eggs cannot be hurried in such a fashion. Rather will it have its natural organization upset and cease to provide any eggs at all.

Let us examine the effect which has been produced by calmer reflection and more careful consideration after the initial wave of enthusiasm has subsided on the various governments whose representatives were instructed to subscribe to the Draft Hours of Labour Convention. Ratification of the Convention binds each signatory country for a period of ten years.

Out of 55 members of the International Labour Conference only five have ratified or notified their intention to ratify. One of these is India, which is exceptionally accepted on the basis of reducing its hours of labour to 60 per week. Greece, Bulgaria and Roumania do not come under the Convention until 1st July, 1924, and legislation to give effect to the 48-hour week had not been introduced at the date of the report made at the last meeting of the International Labour Conference. Czecho-Slovakia is the only country claimed to have ratified the Hours Convention without reserve, but the report is careful to observe that as its regulations are dated earlier than the Washington Conference certain discrepancies exist.

Fifty countries have after four years' consideration not yet definitely committed themselves. From the report, already referred to, made by the director, M. Albert Thomas, to the last meeting of the conference, 25 countries had not even replied to his enquiry for information. The remaining 25, which embrace all the great industrial nations, state some of the obstacles which prevent them according their ratification. Judging from these replies the probability of any one of them doing so in the near future seems very slight.

As M. Albert Thomas says, there are two fundamental reasons which have deterred ratification :

1. The competition of other countries.
2. Reduction of production.

The first is due to the natural hesitancy of a country to place its industries under a handicap with respect to competing countries which are either not members of the conference or which place widely differing interpretations on its regulations.

By continued conferences and exchange of views it is possible to overcome these difficulties.

With regard to the second reason no efforts of the International Labour Conference can avoid the consequences of reducing the hours of labour. The more serious the reduction enforced the more reason have the governments of the world to fear their inevitable economic effect.

However sincere the members of the conference were in endeavouring during the period following the first meeting to secure for the industrial populations of their respective countries the benefits of a 48-hour week, they have been compelled to modify their earlier legislation. Switzerland has perhaps more definitely than any other country stated that it cannot restrict its very important industries to the limitations of the Draft Convention if its prosperity is to be maintained, and permits a 52-hour week.

Italy legislates for an "effective" working week, and defines "effective" work as "that which demands continuous and assiduous application."

France also provides for an "effective" working week, but gives no definition of "effective." Some idea of what is meant may be gleaned by an example of one of the agreements between employers and operatives which receives the sanction of the French laws :

The 48 hours of effective work are to be spread over the week to allow for a rest on Saturday afternoon. One hour extra per week beyond the 48 hours of effective work to be devoted to cleaning the machines.

Accidental stoppages of all kinds .. .. ..	20	hours per year.
Stoppages for legal holidays, local fêtes and local events .. .. .. .. ..	80	" "
Extra hours permitted by law to meet exceptional demands for work (surcroit de travail) .. ..	150	" "
 Total .. .. .. .. ..	 <u>250</u>	 "

Spread over the entire year these hours are equal to five hours per week, making a maximum of 53 hours per week of effective work or 54 hours including the hour for cleaning.

These hours are to be spread over a schedule agreed upon at each mill, but so that 10 hours in any one day is not to be exceeded.

And yet France is one of the countries in which the International Labour Organization assert that the 8-hour day is established by law in principle.

There does not appear to be any country which has established the 48-hour week by law which does not make possible the working of longer hours either by exceptional conditions applicable to industries liable to foreign competition or by legal sanction given to agreements between employers' and workers' organizations.

So much so is this the case that the Director of the International Labour Organization plaintively asks : " Is it not because the initial faith which inspired the Peace Treaty—faith in the justice of the

principles which were consecrated in the Preamble . . . where the world of labour has thought to find its Great Charter—is somewhat weakened ? ”

No ! It is not any weakening of that faith. It is the fact that the States find that the aspirations of the world of labour cannot be realized except by the progress of evolution, by the advancement of knowledge in every direction which enables productivity to be maintained by a diminution of personal effort.

The great cotton industry has been brought to such a state of efficiency that human labour is capable of little or no greater productivity by a reduction of hours in England and many other countries. This was clearly demonstrated in the statistics presented at the Stockholm Conference.

The United States of America next to Great Britain possesses the greatest cotton textile industry in the world. Its policy is therefore bound to exert an enormously powerful influence on the cotton industry of other countries. Out of a total world spindlage of 156,000,000 it now possesses 37,000,000, as against Great Britain's 56,000,000. Not being a member of the International Labour Conference it is independent of its decisions. Massachusetts, containing slightly under a third of the total spindles, is the only industrial State to possess a legal 48-hour law applicable to women and young persons. No State restricts the hours of employment of men. Rhode Island and New Hampshire, which for a short period had a 48-hour week in operation in the cotton mills, reverted last year to a 54-hour week and bills to establish a legal week of 48 hours in those two States have been defeated. The position of the cotton industry in Massachusetts as compared with the other States with longer hours is stated by Mr. Robert Amory, the President of the National Association of Cotton Manufacturers, according to a press report as follows :

“ He vigorously urged the repeal of the 48-hour law in Massachusetts, declaring that unless the hours of work are lengthened the future of the cotton industry is seriously threatened.

“ In the past the difference between 60 hours in Massachusetts and 66 hours in the South was not the handicap that it seems, for the fatigue of the worker made the extra hours much less productive. Then we came to 54 hours and the South to 60. There we were under a greater handicap and the industry moved away from us faster. Then Massachusetts goes to 48 hours, the only industrial State to have such a law, and has to compete with 55 and 60 in the South. The results are appalling.

“ North and South Carolina together have approximately the same number of spindles as Massachusetts. In September, 1921, the production of the Carolinas was 225,000,000 spindle hours, or 35·7 per cent. more than Massachusetts ; in November, 58·1 per cent. more ; in December, 43·4 per cent. more. These two States and Virginia alone have erected 8,500,000 new spindles since 1900 against Massachusetts' 4,000,000.”

The position of Massachusetts in relation to her sister States of the Union is exactly the position of Great Britain in relation to other countries with longer hours, except that the handicap in the latter country is even heavier. For in Great Britain, without the aid of legislation, the workers have reduced the effectiveness of the 48-hour week by insisting on longer

stoppages of machinery for cleaning, oiling, etc., than existed even in the former week of 55½ hours.

If every cotton-manufacturing country of the world agreed to reduce hours of labour to uniformity each would at least be able to face the economic results on an equal footing. But the country which individually reduces its hours to 48 or less cannot reasonably or logically expect to maintain its position and prosperity against the country which can barter the products of 55 or 60 hours.

## Wages, Hours and Employment in Cotton Manufacturing - North and South of U.S.A.

ONE of the most important periods in American industrial development is covered in a report recently issued by the National Industrial Conference Board, New York. A section of this report, of which the following article is an abstract, covers cotton manufacturing in northern and southern States. The survey takes as a base month July, 1914, and carries its study from the peak of post-war expansion in 1920 through the widespread depression of late 1920, through 1921, and on to the recovery shown in 1922.

In considering wages in the cotton industry, the differences between manufacturing and wage-earning conditions in the northern and southern mills must be borne in mind. In the southern mills generally and in northern to a far greater extent than is realized, company houses are provided for operatives at nominal prices. The type of construction used in the northern houses is usually much superior to that in the southern. When this is considered it is probable that "real" values in northern rents surpass those in the south. This factor of housing and the disparity of hours of labour should be especially studied in measuring comparative wages. Consider an average weekly wage of \$19·60 in December, 1922, in the north paid for 48·4 hours and a corresponding wage of \$17·03 for 51·5 hours in the south. By computing the southern wage on the northern basis of hours it is seen that the southern operative is in an even more unfavourable position as he receives only \$16·00 whereas his northern competitor is paid \$3·60 or 22½ per cent. more.

The wage investigation in northern and southern cotton mills was confined to establishments engaged in spinning, weaving and finishing of cotton fabrics. Returns were made by 33 northern establishments. Northern average hourly earnings in December, 1922, were 40·5 cents, which was 130 per cent. above the July, 1914, level of 17·6 cents, but 24 per cent. below the December, 1920, peak of 53·6 cents. Average weekly earnings were \$19·60 or 114 per cent. above \$9·16 of 1914, but 25 per cent. below the June, 1920, peak of \$26·06.

Returns were made by 16 southern establishments. Southern average hourly earnings in December, 1922, were 33·1 cents, which was 183 per cent. above the July, 1914, level of 11·7 cents, but 24 per cent. below the November, 1920, peak of 43·7 cents. Average weekly earnings were \$17·03 or 159 per cent. above \$6·58 of 1914, but 23 per cent. below the September, 1920, peak of \$22·27.

A bird's-eye view of employment, hours of labour and earnings in both sections of the country is provided in the following table:—

## HOURS OF LABOUR AND EARNINGS—COTTON MANUFACTURING (NORTH)

PERIOD	Males, Unskilled				Males Skilled				Women				Index Nos. Famings Hourly Weekly	Average Hourly Earnings Hourly Weekly	Average Hourly Earnings Hourly Weekly	
	Number Wage Earners	Average Actual Hours	Average Hourly Famings	Index Nos. Earnings Hourly Weekly	Number Wage Earners	Average Actual Hours	Average Hourly Famings	Index Nos. Famings Hourly Weekly	Number Wage Earners	Average Actual Hours	Average Hourly Earnings Hourly Weekly	Index Nos. Famings Hourly Weekly				
1914																
July	3,510	53.0	\$108	\$8.80	100	100	10.503	53.0	\$202	\$10.69	100	100	10.582	50.6	\$1.53	\$7.74
1920																
June	4,728	53.2	485	25.80	280	290	12,084	49.1	.611	20.90	302	290	13,803	47.3	.475	.22.14
July	4,650	61.8	487	23.91	280	284	12,987	49.0	.605	20.64	298	277	13,633	47.1	.464	.21.85
August	4,654	49.0	487	24.32	260	274	12,735	48.3	.601	20.03	298	272	13,251	46.0	.450	.21.50
September	4,431	48.9	485	23.29	259	262	12,227	48.1	.600	20.84	297	270	13,353	46.0	.461	.21.23
October	3,747	48.9	499	24.40	267	274	10,935	43.8	.605	20.45	298	247	11,564	41.8	.497	.19.55
November	2,955	41.2	502	20.69	209	223	9,766	37.5	.600	22.52	297	211	10,763	30.0	.474	.16.94
December	2,887	37.8	480	18.36	261	207	9,290	35.3	.611	21.56	312	202	9,848	31.4	.474	.14.87
1921																
January	3,569	42.0	395	16.39	235	187	9,825	35.6	.507	18.06	251	160	10,380	35.4	.373	.13.19
February	3,674	43.2	386	16.69	230	188	10,291	38.9	.493	19.16	244	179	10,054	38.0	.366	.13.90
March	3,760	45.2	386	17.42	230	197	10,586	38.1	.496	18.90	246	177	11,223	37.5	.368	.13.83
April	3,703	44.3	386	17.35	233	195	10,331	37.0	.495	18.35	245	172	10,542	36.8	.366	.13.46
May	3,660	46.1	386	17.92	232	202	10,615	41.8	.498	20.79	247	194	11,438	41.5	.362	.15.00
June	4,035	47.2	394	18.58	235	209	10,869	43.1	.488	21.06	242	197	11,549	42.1	.358	.13.01
July	4,910	46.4	377	17.49	224	197	10,039	44.1	.482	21.26	239	199	10,928	42.0	.357	.14.99
August	4,389	47.7	368	17.55	219	197	10,324	44.5	.473	21.08	234	197	11,038	43.4	.357	.15.30
September	5,004	49.2	371	18.23	221	205	10,406	46.0	.470	21.88	236	205	11,775	43.2	.360	.15.37
October	5,217	49.7	364	18.11	217	204	10,815	47.0	.473	22.20	234	208	12,389	43.7	.359	.15.07
November	5,362	47.5	368	17.45	210	196	11,195	46.3	.481	22.25	238	208	12,434	44.7	.336	.15.91
December	5,136	45.6	368	16.76	219	189	11,054	45.8	.481	22.05	238	206	12,330	43.5	.354	.15.38
1922																
July	3,072	47.9	372	17.81	221	200	8,880	40.6	.442	20.59	219	193	9,578	43.4	.342	.14.85
August	4,019	46.2	388	17.91	231	201	9,272	46.2	.432	19.97	214	187	9,944	43.2	.334	.14.17
September	4,010	46.0	385	17.74	229	200	9,451	47.4	.450	21.73	227	203	10,192	43.6	.337	.15.56
October	4,383	49.0	386	18.36	235	218	10,356	48.2	.461	22.21	228	208	11,003	45.1	.352	.15.86
November	4,436	50.9	384	19.33	229	220	10,979	49.0	.465	22.91	230	213	11,505	46.0	.356	.16.37
December	4,624	50.7	377	19.16	234	216	11,331	49.3	.466	22.97	231	213	11,944	46.6	.336	.16.57

## HOURS OF LABOUR AND EARNINGS—COTTON MANUFACTURING (SOUTH)

PERIOD	MALE UNSKILLED				MALE SKILLED				WOMEN			
	Number One Week In Wage Earners	Average Actual Hours	Average Hourly Earnings	Index Nos. Earnings Hourly	Number Wage Earners	Average Actual Hours	Average Hourly Earnings	Index Nos. Earnings Hourly	Number Wage Earners	Average Actual Hours	Average Hourly Earnings	Index Nos. Earnings Hourly
		Weekly	Weekly	Hourly	Weekly	Hours	Hours	Hourly	Hours	Hours	Hourly	Hourly
1914												
July ..	1,292	57.3	\$ 4.83	100	100	4,104	57.3	\$ 136	57.79	100	100	\$ 104
1920												
June ..	1,360	50.3	\$35	10.84	399	349	4,203	53.0	\$480	25.45	353	827
July ..	1,347	52.2	\$48	18.21	414	378	4,240	54.2	\$486	26.35	357	838
August ..	1,377	52.0	\$51	18.27	418	375	4,169	53.4	\$401	26.24	351	837
September ..	1,381	50.3	\$60	18.11	420	373	4,169	52.6	\$518	27.18	381	721
October ..	1,316	49.1	\$52	17.28	419	368	4,061	49.4	\$518	27.01	381	703
November ..	1,324	48.7	\$38	16.89	414	352	4,003	48.7	\$524	25.32	385	707
December ..	1,269	48.7	\$301	14.68	368	304	3,932	60.9	\$432	21.99	318	2,053
1921												
January ..	1,293	49.9	\$27	13.82	380	286	4,865	52.2	\$426	22.23	313	285
February ..	1,280	50.1	\$20	14.14	383	265	4,118	53.2	\$411	21.87	302	292
March ..	1,348	49.7	\$27	13.50	325	291	4,298	51.5	\$890	20.06	287	301
April ..	1,344	50.3	\$26	12.64	298	263	4,171	52.0	\$378	16.63	278	252
May ..	1,360	51.3	\$23	12.96	300	268	4,389	63.4	\$348	18.57	256	2,086
June ..	1,373	49.1	\$24	11.92	289	247	4,480	53.0	\$336	17.93	246	2,081
July ..	1,572	43.1	\$24	13.49	302	279	4,215	53.6	\$347	18.03	245	2,081
August ..	1,652	52.6	\$27	13.54	306	280	4,160	50.1	\$351	17.42	258	2,236
September ..	1,668	53.7	\$26	13.96	310	289	4,178	54.0	\$351	18.46	243	2,280
October ..	1,642	53.5	\$26	14.18	313	294	4,317	53.8	\$350	19.15	262	1,257
November ..	1,694	53.9	\$27	14.54	321	302	4,270	56.3	\$352	19.81	254	3,280
December ..	1,689	54.0	\$27	14.92	320	309	4,137	57.7	\$352	20.35	250	3,167
1922												
July ..	1,857	53.1	\$26	14.02	314	296	4,437	53.0	\$383	20.30	282	201
August ..	1,832	52.2	\$25	13.31	311	276	4,435	54.5	\$374	20.39	275	202
September ..	1,803	50.8	\$24	12.50	293	261	4,451	52.2	\$392	20.45	283	2,045
October ..	1,889	52.3	\$26	12.88	293	267	4,486	52.6	\$403	21.21	206	2,045
November ..	2,077	52.1	\$26	13.46	307	270	4,580	53.9	\$393	21.16	289	2,007
December ..	2,282	52.2	\$26	13.33	305	277	4,495	53.6	\$402	21.54	296	1,77

The upward trend in earnings and employment was continued from January to March, 1923, as shown in the epitomized data below:—

Locality	Average Hourly Earnings			Average Weekly Earnings			Employment		
	January	February	March	January	February	March	January	February	March
North Cotton Mfr.	\$ 408 ·337	\$ 406 ·312	\$ 408 ·317	\$19.64 17.11	\$19.78 17.17	\$20.00 17.24	28,327 10,873	28,380 10,449	28,874 10,921
South Cotton Mfr.									

No compilation is yet available showing the effect on earnings of the general 12½ per cent. wage raise in the North and the 10 per cent. in the South which took place in April. (*Reprint from Bulletin No. 39 of the National Association of Cotton Manufacturers, Boston, Mass.*)

#### COMPARISON OF COTTON MILL WAGES IN NORTH AND SOUTH OF U.S.A. REDUCED ON THE SAME WORKING HOUR BASIS.

Class of Worker		South Dollars	New England Dollars
Picker Tenter ..	..	12.43	20.40
Card Grinders ..	..	19.23	30.03
Card Tenters ..	..	11.90	20.40
Drawing Tenters ..	..	11.46	20.40
Speeders ..	..	16.00	22.39
Rovings ..	..	11.60	—
Roving Carrier ..	..	11.16	20.40
Spinners ..	..	13.87	23.03
Spoolers ..	..	15.44	20.43
Elevator Man ..	..	10.58	13.03
Sweepers ..	..	10.02	—
Inspectors ..	..	10.88	15.00
Machinists ..	..	20.35	35.35
Firemen ..	..	12.98	28.13
Night Watchmen ..	..	11.44	17.90
Carpenters ..	..	17.23	32.10
General Help ..	..	10.23	20.15
Twisters ..	..	14.00	24.86

These particulars were supplied to me on my recent journey by a firm which has a mill in the North and is about to establish one in Georgia, where 60 hours may be legally worked.

It must be taken into account that for the cost of building the village of the mill operatives in the South about \$5 per spindle has to be provided, an expense which the Northern mills have not to bear. A comparison of the wages alone is misleading.

Another firm with mills both in North and South stated that the difference in favour of the South in the production of printing cloth was from 8 to 9 cents, but Southern millowners whom I consulted thought 6 cents per lb. was the maximum difference per lb.

A third millowner, with concerns in both sections, attributes the lower cost of production in the South more to the better class of workpeople found there and to the more general introduction of the automatic loom.

ARNO S. PEARSE.

## JAPANESE COTTON MILLS.

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CURTAILING COTTON YARN PRODUCTION. A General Meeting of the Japan Cotton Spinners' Association, on the 7th May, adopted a resolution passed by the committee of the Association making compulsory at least four holidays per month and not more than 20 hours' work in two 10-hour shifts. The object of the resolution is to curtail production for the period from May 15 until the time when midnight work is abolished.

A recent amendment of the Factory Law which has passed both Houses of the Diet and is expected to be enforced in the autumn of this year will enact that midnight work is to be abolished three years afterwards.

The English "Osaka Mainichi" of 3rd May states that many divergent opinions are current as to the effect of the resolutions. Should it be adopted by all the committee, firms and others who are already practising the four holidays and two 10-hour shift method the number of spindles represented by these firms will be more than three-quarters of the total number of spindles in operation at present.

The strict enforcement of the restricted hours is expected, according to the newspaper, to bring about a decrease in production of only 5,000 bales or thereabouts.

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## Revision of the Japanese Factory Law and Opposition of the Japanese Spinning Companies.

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**T**HE Department of Overseas Trade learns that a Bill embodying many of the changes in the Japanese Factory Law that were proposed as a result of the First International Labour Conference at Washington has now passed both Houses of the Diet. The principal changes are as follows :

1. The law is made applicable to factories employing not less than 10 operatives, whereas under the existing law the minimum has been 15.

2. Article II, which provided that children under 12 could not be employed, has been deleted and in its place a new law has been passed prohibiting the employment in specified industries, which cover practically every industry except agriculture, of children under 14.

3. The age limit for juveniles has been altered from 15 years to 16 years, and the number of hours during which they and females are allowed to work has been reduced from 12 to 11.

4. Under the existing law, night work was prohibited between the hours of 10 p.m. and 4 a.m. for females and youths under 15. Various exceptions were provided for under Articles V and VI, the latter article specifying that where operatives were employed in two or more shifts the prohibition was not to be effective for a period of 15 years from the enforcement of the law. This clause was most important as regards the textile industries, especially cotton spinning, as it meant that the cotton mills were given 15 years' grace.

Under the new law the age limit has been changed to 16, the hours have been changed from 10 p.m. to 4 a.m. to from 10 p.m. to 5 a.m., and Articles V and VI which provided the exceptions have been deleted. But there is a supplementary clause which says that "in cases where

workmen are employed in two or more shifts the provisions of Article IV shall not apply for three years following the enforcement of the revised law." This means then that in practice the cotton mills and other industries concerned will have three years' grace.

5. Under Article V of the existing law, factory owners were compelled to afford assistance to operatives or their families in case of injury, sickness or death, brought on while the operatives were in the performance of their duty, *provided there was not gross negligence on their part*. In the revised article this stipulation about gross negligence has been deleted.

6. The maximum penalty for a breach of the law has been increased from 500 yen to 1,000 yen.

Nearly all the amendments which had originally been made with a view to moderating the stringency of the law have now been re-amended, so that the present law as revised is very similar to the original draft which was submitted to the Diet in 1911.

The date when the revised law will come into effect has not yet been announced and it will be necessary to await promulgation in the "Official Gazette" before the complete text can be obtained.

It is difficult to tell what the effect of the changes will be until the detailed regulations for enforcing the law are published, and these will probably not be ready for at least two or three months.

The most important results, however, will be that the law will apply to a considerably larger number of factories. A writer in the *Osaka Mainichi* estimates that in Osaka alone the number of factories subject to the law will be doubled, over 2,000 more factories coming within the application of the law.

The abolition of night work will mean that more machinery will be required in the cotton mills.

The prohibition of work for children under 14 years of age gave rise to an interesting discussion in the House of Peers. It was pointed out that under the Education Act the children of poor people are not compelled to go to school, while by the new law they would be prohibited from working. It was feared, therefore, that the result would be the production of a large number of vagabond youths lacking ways to use their time.

A recommendation was made that the Education Act should be so amended that poor children should be compelled to go to school, financial assistance being given by the Government in necessitous cases.

As to the reason for the delay in the promulgation of the new Factory Law, which passed both Houses at the last sitting of the Diet, diverse views are current. Master cotton spinners are said to be quite dissatisfied with the new revision and have long been hoping that the Government would reconsider the matter prior to promulgation.

#### SPINNERS' PETITION.

When the representative of the five associations and unions of dealers in cotton and manufactures repaired to Tokio lately, in order to move the Government to do something for solving once for all the Sino-Japanese problem, Messrs. Fukumoto (Dai Nippon Cotton Spinning Co.), Shoji (Toyo Cotton Spinning Co.), Sakada (Godo Cotton Spinning Co.), Hashidzume (Kanegafuchi Cotton Spinning Co.), Yamanouchi (Kurashiki Cotton Spinning Co.) and others, called on the Department of Agriculture and Commerce, and explained in detail their criticism of the new law.

## REASONS OF DISSATISFACTION.

The fundamental aim of the new revision of the law is the alleged health of women labourers ; it is claimed that the health of the operatives will suffer in consequence of the new law. For example, the two-shifts system for the working hours, viz., from 5 a.m. to 10 p.m., means the time of change of shift would be at 2 p.m. As to whether labourers would use their morning and free afternoon time in a proper way is very questionable, but most probably they would not do so. The more industrious of the labourers would engage in other work during their leisure time, and the idle ones would pass it in dissipation, thus their efficiency would be more or less harmed when they start their work in the mill. As the practice of a one-shift system during daytime only is an impossible proposition, the Government should deeply consider the problem prior to the promulgation of the Act so as to avoid economical dislocation as well as unrest among the labourers as a result of a shrinkage of income owing to the decreased working hours.

## GOVERNMENT CAREFUL.

The Government thinks that the superiority of the Japanese cotton spinning industry over that of the foreign countries was due formerly to favourable labour conditions in this country. But after the abolition of night work, the cost of production will rise very much, and in the production of coarse yarns the Japanese factories will not be able to compete against the Chinese, and as to yarn finer than 40's counts, the Japanese make cannot be sold beyond British India. Thus the prospect of the Japanese industry is quite gloomy. Taking all these points into consideration, the Government assured the representatives of the cotton spinning companies that they would respect the opinion of the spinners in drafting the detailed regulations supplementary to the law. (Translation from the *Osaka Mainichi*, 28th June, 1923.)

COMPARISON OF COTTON GREY CLOTH PRICES  
THROUGHOUT THE WORLD.

*The following article is a continuation of the one issued in the last number of the BULLETIN under this heading.*

The margin of price on cotton grey cloth between Manchester and New York has been gradually narrowing, and a similar price advantage of Japanese grey goods over American unbleached cloth has also been reduced, according to the Textile Division's compilation of weekly averages of cotton grey cloth, secured from the world's principal textile producing centres. In view of the keen competition which American grey (unbleached) goods is encountering in the important markets of the Philippines, Latin America, and the Near East, where, in many cases, price has been the deciding factor, a study of the movement in each of the principal cotton-cloth markets should prove profitable.

## DIVERGENCE BETWEEN MANCHESTER AND NEW YORK PRICES.

The Textile Division's New York weekly average price is based on three sheetings and five print cloths averaging as follows : Width, 35·5 in. ; construction, 61 by 60, 5·34 yds. to the lb. Manchester prices were compiled on six grey shirtings and two printers, averaging 36·6 in. in width, 63 by 60, and 5·01 yds. to the lb.

At the beginning of 1923, the New York average price was slightly more than 10 cents a lb. higher than Manchester. This approximate difference was maintained until the end of April, and was due, to a large extent, to the British policy of continuing operations at very small profits or even in the face of losses. Coincident with the decline of raw-cotton prices in April and May this year, New York prices began a steady drop from about 57 cents at the end of March to 46 cents in the last week of July. In contrast, British prices were slower in reflecting this decrease in the cost of raw cotton, the Manchester price on March 29 having stood at 46.03 cents, while the cabled price for the week ended July 21 was 43.61 cents, on which date the difference between New York and Manchester quotations amounted to a little more than 3 cents. Practically the same divergence was evident on the corresponding date of last year. In the first six months of 1922, the range in average price for both New York and Manchester did not exceed 4 cents, with British cloths always a trifle lower. Beginning with July, 1922, an upward trend was apparent in the American grey-goods market, while British cloths, despite slight fluctuations, continued to manifest a downward tendency until October, but during the last quarter of 1922, Manchester cloths advanced from 40 to 43.85 cents, the last-mentioned figure being quoted on December 28.

#### PRICES IN THE INDIAN MARKET VARY.

Comparisons for India have been made from reports of the market in Calcutta, Madras, and Bombay, the last-named city being the principal cotton manufacturing centre of India, as well as the principal import market for cotton piece goods. Weekly bazaar prices for six shirtings, with an average construction of 69 by 64, formed the basis for the Calcutta averages, which opened in January, 1923, at 50.46 cents and reached the peak of 56.58 cents in the week ended January 27. From this date a gradual decrease has been evident, the cabled quotation on July 26 being 46.26 cents.

The average construction of the four shirtings, one dhoyt, and one jaconet, on which current prices have been submitted from Madras, is 65 by 57. Imported cloths figure in this market, with the result that the average has been much higher than prices for Calcutta and Bombay. In contrast to the other centres for which comparisons have been made, prices in Madras have shown an upward tendency, opening the year at 57.21 cents and exhibiting marked fluctuations throughout the seven months, with the cabled quotations on July 19 standing at 59.15 cents.

Somewhat coarser cloths were used in arriving at the Bombay prices, the average construction of the two sheetings, three shirtings, and one domestic utilized being 53 by 49. These cloths are all of Indian manufacture. No great variation is evident in the Bombay prices for the first seven months of 1923, the year having opened at 39.10 cents and the cabled price on July 19 being 39.64 cents. No attempt was made to compare the price of imported cloths in the Bombay market last year, but quotations on two shirtings, two jaconets, and two drills, with an average construction of 65 by 54, received intermittently during the first six months of 1923, show these cloths to have remained practically stationary, averaging about 57 cents a lb.

#### JAPANESE GREY CLOTH PRICES HIGHLY COMPETITIVE.

Japanese grey cloths used for 1923 comparisons comprised three shirtings, three sheetings, one T-cloth, and one drill, the average con-

struction having been raised from 54 by 50 in 1922 to 55 by 51 by the addition of one grey shirting. The prices are for the Osaka market, which, opening the year at 46·10 cents, have shown a downward trend to 44·89 cents on June 23. Cabled advices subject to confirmation show this movement has become more marked, the quotations per lb. for specified dates being reported as follows : June 21, 43·38 cents ; June 28, 42·89 cents ; July 5, 42·12 cents ; and July 14, 41·92 cents. This is especially significant in consideration of the fact that Japanese competition with American grey goods has recently been making itself felt in the Philippine, the Near East, and some Latin American countries.

#### PRICES OF GREY CLOTH IN SEVEN MARKETS.

Comparative prices on these cloths have been calculated on the pound basis, the price being quoted in the local currency and converted to United States money at the current exchange rate as given by the Federal Reserve Bank. Chinese prices for 1923 have been incomplete, and it is not deemed advisable to attempt any comparison with 1922. The monthly average prices for seven important piece goods centres in 1922 and the first seven months of 1923 are shown in the following table :

MONTHLY AVERAGE PRICES OF COTTON GREY CLOTH  
(CENTS PER LB.)

Months	Calcutta	Madras	Bombay	Osaka†	Shanghai‡
<b>1922</b>					
January . . .	47·98	51·91	42·80	43·52	52·96
February . . .	48·42	54·12	42·65	40·49	51·38
March . . .	48·55	55·07	42·71	40·05	50·26
April . . .	49·77	54·02	42·91	41·92	51·53
May . . .	52·13	56·98	44·81	41·17	55·97
June . . .	51·77	59·72	45·51	43·25	55·76
July . . .	50·89	60·06	46·27	45·88	58·56
August . . .	50·38	59·40	46·50	43·90	52·82
September . . .	49·93	58·26	45·80	40·01	51·81
October . . .	48·71	57·53	42·63	39·03	51·18
November . . .	48·97	57·99	41·12	40·00	48·88
December . . .	49·58	60·02	40·80	41·12	48·37
<b>1923</b>					
January . . .	52·78	58·54	41·76	46·40	-
February . . .	54·28	58·64	42·76	45·91	-
March . . .	51·75	58·23	42·20	45·86	-
April . . .	49·71	58·01	40·69	54·82	-
May . . .	48·95	61·67	39·58	45·07	-
June . . .	47·25	59·90	38·96	44·27	-
July* . . .	46·44	58·80	39·25	-	-

\*Cabled quotations subject to confirmation. †Japan. ‡China.

A system of reporting these grey cloth pieces by cable is being worked out, the cable service already having been initiated from Japan, India and London. Plans to include continental countries are maturing.

#### COTTON MILL DIVIDENDS IN LANCASHIRE.

*Mr. Frederick Tattersall, Manchester, in his August Circular, writes :*

The position of the cotton mill share market in Lancashire is going from bad to worse. Prices continue to favour buyers. More companies are now in the discount class. Fears of definite financial trouble are increasing, and a great deal depends upon the policy of the banks during the next few months.

77 concerns which have recently issued balance sheets engaged solely in the spinning of cotton yarn, show a total paid-up ordinary share capital of £11,703,764 and 7,986,899 spindles. No payment whatever was possible for 62 companies, but one firm made a distribution at the rate of 3½ per cent. per annum, one 4½, two 5, one 6, seven 10, one 12½, one 13½, and one 20 per cent., absorbing £40,614.

For the 34 companies whose stocktaking reports relate to the three months ended July, an average payment of 3·06 per cent. was made, compared with 3·32 in April, 3·31 in January, 3·51 in October, and 4·04 per cent. per annum in July, 1922. The total paid-up ordinary share capital of the 34 companies is £3,510,135, and the aggregate spindle-age 3,407,306. In 23 cases no dividend was paid, but one firm distributed 4½ per cent., two 5, one 6, five 10, one 13½, and one 20 per cent. per annum, requiring £26,469.

Thirty-nine companies, which have a total paid-up ordinary share capital of £8,193,629 and possess 4,579,593 spindles, paid an average dividend for the six months ended July of 84 per cent. per annum, against 1·27 in January, and 2 per cent. in July, 1922. One concern paid 3½ per cent., two 10 per cent., and one 12½ per cent., for which a sum of £14,145 was necessary. No distribution at all was made in 39 cases.

### TEXTILE MACHINERY SHIPMENTS.

The following is a comparative table of textile machinery shipments from the United Kingdom for the past 11 years:—

	JULY		SEVEN MONTHS ENDED JULY	
	Tons	£	Tons	£
1913	13,803	680,110	101,883	4,709,278
1914	13,667	648,767	94,267	4,569,567
1915	4,742	275,430	35,421	1,849,879
1916	5,655	402,203	84,973	2,324,324
1917	4,074	368,929	30,829	2,520,826
1918	2,488	338,005	21,935	2,242,391
1919	6,525	791,866	32,668	4,057,735
1920	6,721	917,669	27,860	3,711,790
1921	10,886	1,785,327	89,668	14,763,437
1922	8,204	1,224,929	77,273	11,488,339
1923	9,357	1,020,415	86,364	10,228,209

A comparative detailed table of the weights of textile machinery shipments for the seven months, January to July, of the three years, 1921, 1922, and 1923, is shown below:—

	SEVEN MONTHS ENDED JULY		
	1921	1922	1923
Russia	—	44	50
Germany	158	267	472
Netherlands	1,409	907	1,564
France	14,916	7,130	6,301
Other Countries in Europe	8,601	4,720	10,999
China (including Hong Kong)	8,081	10,480	4,489
Japan	12,348	18,414	12,223
United States of America	8,504	2,966	3,582
Countries in South America	8,366	1,940	4,050
British East Indies	33,305	33,123	37,224
Australia	1,099	1,332	2,708
Other Countries	2,681	932	2,700
Total	89,668	77,275	86,364

## SINGLE SUMMARY.

			1921	1922	1923
			Tons	Tons	Tons
Spinning ..	..	..	66,167	62,710	69,589
Weaving ..	..	..	17,647	11,674	13,578
Other ..	..	..	5,854	2,891	3,197
Total ..	..	..	89,668	77,273	86,364

**The Organization of the Belgian Cotton Industry.**

THE organization of the Belgian Cotton Industry is not a recent undertaking, as next year we celebrate the 25th anniversary of the constitution of the "Association Cotonnière de Belgique." This Association was established for the safeguarding of the general interests of the industry and for a long number of years uniform conditions of sale have been established by the same. We may also recall here that the Belgian Association was one of the promoters of the International Cotton Federation and that the idea of the establishment of the Federation was many years ago first discussed in a Belgian review.

Though before the war the mutual accord which existed between the members of our organization had already rendered appreciable service to the industry, this organization, caused through the German occupation, has much further shown the necessity of a closer union; consequently in 1917 the Belgian cotton spinners reorganized and constituted the co-operative society called "La Textile" to ensure for the future the necessary guidance to the development and prosperity of the cotton industry.

This twofold purpose has been steadily kept in view by "La Textile" from its inception. It was this organization which immediately after the Armistice grouped all the orders together, bought the raw material and the necessary plant for getting the mills again into working order. Spinners overcame, thanks to the organization, the difficulties of credit which were very great for those mills which had been plundered and damaged and which had no other guarantee to offer other than their former activity and energy. The year after the Armistice 80 per cent. of the spindles had restarted work. The work of restoration undertaken by "La Textile" was accomplished with a rapidity which surpassed the most sanguine hopes.

The grouping of the spinning mills was the first item on the programme; the aim was to place the Belgian cotton industry in that position which it has never occupied before in the world's markets.

Belgium owes its prosperity to the quality and advantageous prices of her products. The cotton spinners are concentrating their united efforts on the development of this reputation for the Belgian cotton industry, and they are endeavouring to obtain through progressive specialization of the mills greater perfection in the manufacture of the goods and a reduction of the cost price to the benefit of the consumer, to the industry and to the country as a whole. The spinners have entrusted "La Textile" with the sale of their production and, through the allotment of orders amongst the affiliated members, enables the specialization of the different classes of counts most suitable to each mill.

The Belgian cotton spinning industry, whose production largely exceeds the requirements of the home consumption, is about to organize through the medium of "La Textile" the sale of its goods in foreign

countries. The importance of our organization enables the establishment of ramifications which an individual firm could not think of undertaking.

Exports are vital for the cotton industry, which is face to face with the establishment of prohibitive Custom House tariffs on the part of friendly countries who before the war consumed our yarns.

The spinners act unitedly in all regions where their co-operation can be of use to the industry; thus they have formed in "La Textile" a special section for the purchase of raw cotton, another department collects all the spinning waste and sells it direct to consumers.

Acting under the stimulus of "La Textile," some spinners have felt the want of entering into still closer ties and have combined in an important limited company under the name of "Union Cotonnière"; this comprises eight mills with 260,000 spindles or one-sixth of the total spindles existing in Belgium. This concentration enables a more effective carrying out of one of the guiding ideas of "La Textile," namely, the specialization of the mills and consequently the reduction of the cost price.

The grouping of the spinners carries with it moral and financial assistance towards all those initiatives which may be a source of prosperity for the industry; for example, it has interested itself considerably in the construction of the Congo Cotton Company, which undertakes the development of cotton growing in our colony. It also contributes in the organization of the exportation of woven goods by participating in the establishment of the Belgian Weavers' Office, and it encourages by subsidies the education in industrial schools of special workpeople. Further, it endeavours to place the port of Ghent in that rank which the geographical position intended it, namely, to become an important centre for the importation of raw cotton.

The results which we have obtained so far in various directions have convinced us that considerable advantages may be obtained through a closer union amongst the producers. We are continuing methodically with the realization of our programme through the establishment of an organization which we have full confidence will contribute in the future to the prosperity of our cotton industry.

PIERRE DE SMET.

*The following is the original article.*

L'ORGANISATION de l'industrie cotonnière belge n'est pas une œuvre nouvelle; nous fêterons l'an prochain le vingt-cinquième anniversaire de la constitution de l'Association Cotonnière de Belgique. Cette association, créée pour la défense des intérêts généraux de l'industrie, a permis depuis de longues années déjà de fixer certaines conditions de vente uniformes. Rappelons qu'elle a été un des promoteurs de la Fédération Internationale Cotonnière et que l'idée de la création de la Fédération a été lancée autrefois dans une revue belge.

Si avant la guerre l'entente qu'existaient entre les membres de notre association avait rendu déjà à l'industrie d'appréciables services, la désorganisation occasionnée par l'occupation allemande a fait ressortir la nécessité d'une union plus étroite. Aussi, dès l'année 1917, les filateurs de coton constituaient-ils la Société Coopérative "La Textile" qui devait être l'instrument de leur réorganisation et assurer dans l'avenir à l'industrie cotonnière les directives utiles à son développement et à sa prospérité.

Ce double but, La Textile l'a poursuivi sans relâche depuis sa constitution. C'est elle qui, au lendemain de l'armistice, groupe les commandes, achète les matières premières et le matériel indispensable

à la remise en marche des usines. Les filateurs, grâce à leur groupement, surmontent les difficultés de crédit, difficultés sérieuses pour des usines pillées et saccagées qui n'auraient bien souvent pu offrir à leurs vendeurs d'autres garanties que celles d'un passé d'activité et d'énergie. Un an après l'armistice 80 pour cent des broches avaient repris le travail. L'œuvre de restauration à laquelle s'était consacré La Textile avait été accomplie avec une rapidité dépassant les espérances les plus optimistes.

Le groupement des filateurs avait réalisé la première partie de son programme. Il devait s'attacher désormais à rendre à l'industrie cotonnière belge la place qu'elle occupait jadis sur le marché mondial.

La Belgique devait sa prospérité à la qualité et aux prix avantageux de ses produits. Les filateurs mettront dorénavant leurs efforts en commun pour développer la réputation de l'industrie belge. Ils chercheront à réaliser par la spécialisation progressive des usines une perfection plus grande dans la fabrication et une réduction de prix de revient profitable à la fois au consommateur, à l'industrie et au pays. Ils ont chargé La Textile de la vente de leur production et celle-ci facilite par la répartition des ordres entre ses affiliés la spécialisation dans les genres et les numéros convenant le mieux à l'outillage des usines.

La filature belge dont la production dépasse largement les besoins de la consommation intérieure organisera désormais par l'intermédiaire de La Textile la représentation de ses produits à l'étranger. L'importance de cet organisme permet la création de ramifications qu'une firme isolée ne pourrait songer à s'assurer.

L'exportation est vitale pour l'industrie cotonnière qui voit avec appréhension les pays amis qui avant la guerre consommaient ses fils, leur refuser l'entrée par l'établissement de tarifs douaniers prohibitifs.

Les filateurs s'entendent dans tous les domaines dans lesquels leur union peut être avantageuse à l'industrie. C'est ainsi qu'ils créent au sein de La Textile une section chargée de l'achat des cotonns bruts. Un autre département de La Textile réunit les déchets des filatures et en assure la vente directe aux consommateurs.

Sous l'impulsion de La Textile quelques filatures ont voulu s'unir entre elles par des liens plus étroits encore. Elles se sont fusionnées en une importante société anonyme l'Union Cotonnière qui englobe actuellement 8 filatures et comporte 260,000 broches, soit environ 1/6 des broches existant en Belgique. Cette concentration permet de poursuivre avec plus d'efficacité encore une des idées directrices de La Textile, la spécialisation des usines et par elle la réduction du prix de revient.

Le groupement des filatures apporte son appui moral et financier à toutes initiatives qui peuvent être une source de prospérité pour l'industrie. Nous le voyons s'intéresser notamment à la constitution de la Compagnie Cotonnière Congolaise qui organise et développe la culture du coton dans notre colonie. Il contribue à organiser l'exportation des tissus en participant à la création du Comptoir des Tisseurs Belges. Il encourage par des subsides la formation dans les écoles industrielles des ouvriers d'élite.

Il travaille à donner au port de Gand la place que sa situation géographique lui permet de revendiquer comme centre d'importation des cotonns bruts.

Les résultats que nous avons obtenus jusqu'ici dans les divers champs de notre activité nous ont convaincus des avantages considérables que procure l'entente étroite entre les producteurs. Nous poursuivons méthodiquement la réalisation de notre programme par la création d'organismes qui, nous en avons la confiance, contribueront dans l'avenir à la prospérité de notre industrie cotonnière.

PIERRE DE SMET

## TABLE OF EARNINGS OF OPERATIVES

Published by The Textile Mercury

OCCUPATION	Ashton-u-Lyne district.		Blackburn district		Bolton district		Burnley district	
	Ashton-u-Lyne, Droylsden, Dukinfield, Hurst, Mossley and Stalybridge		Blackburn, Clythoroe, Darwen, Great Harwood, Mellor, Rishon and Whalley		Bolton, Farnworth, Kearsley, Little Hulton, Little Lever and Turton		Barrowford, Blacko, Briercliffe, Brierfield, Burnley, Clow Bridge, Colne, Dunmokshaw, Hapton, Higham, Nelson, Padlham and Trawden	
MEN	*	†	*	†	*	†	*	†
Foremen and assistant foremen :	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Preparing department ... time	40 1	64 1	39 7	63 4	38 5	61 5	—	—
Spinning department .....	42 10	68 5	39 6	63 3	43 1	68 11	—	—
Weaving department .....	37 5	59 8	37 1	59 4	30 4	58 1	41 8	66 8
Mixers .....	42 7	68 1	43 8	73 1	45 10	73 4	45 7	72 11
Scutchers .....	23 0	38 6	19 10	34 8	20 8	38 2	—	—
Grinders .....	25 11	45 4	23 7	41 3	23 5	41 11	—	—
Counts below 40's piece	30 10	53 11	27 1	47 5	29 5	51 6	—	—
Spinners	39 10	63 9	29 1	40 6	44 2	70 8	—	—
" 40's to 80's "	40 3	74 0	30 0	48 0	45 0	72 0	27 10	44 6
" above 80's "	41 11	67 0	—	—	47 6	76 0	—	—
Big piecers .....	18 3	29 1	18 10	30 1	15 8	23 1	—	—
Twiners .....	39 8	63 8	—	—	—	—	—	—
Ball warpers .....	—	—	—	—	42 6	68 0	—	—
Sizers, tapers and slashers ..	43 11	70 3	54 9	87 7	42 3	67 7	43 10	70 1
Warp dressers .....	—	—	—	—	—	—	45 6	72 9
Twisters-in .....	27 9	44 3	24 10	39 9	27 10	44 5	26 1	41 4
Drawers-in .....	36 1	57 8	30 9	49 2	28 4	45 4	33 7	53 9
2 looms .....	—	—	13 4	21 4	28 1	44 11	—	—
Weavers	18 4	29 1	19 0	30 5	16 10	26 11	20 2	32 3
4 "	23 10	38 0	25 5	40 8	24 10	38 9	25 11	41 5
6 "	—	—	32 1	54 4	—	—	33 6	53 7
Warehousemen and packers .....	24 8	39 4	23 1	36 11	23 10	38 1	24 8	39 5
Mechanics .....	27 8	44 3	—	—	28 6	45 7	—	—
Enginemen and stokers .....	36 2	57 8	36 0	57 7	34 8	55 5	34 4	54 11
Boys & Votypas (under 20 years)	—	—	—	—	—	—	—	—
Full timers [Big piecers ... time]	17 4	27 8	17 3	27 7	15 1	24 1	—	—
Full timers [Little .. . . . .]	11 5	18 2	11 0	17 7	10 7	16 11	—	—
WOMEN (18 years and over)	—	—	—	—	—	—	—	—
Drawing frame tenters .....	piece	—	18 10	30 1	15 10	25 4	—	—
Slubbing frame tenters .....	piece	21 5	31 3	20 2	32 3	19 3	30 11	—
Intermediate frame tenters .....	piece	21 11	33 5	19 9	31 7	14 2	22 8	—
Roving frame tenters .....	piece	20 2	32 3	14 8	23 5	17 8	28 3	—
Frame tenters .....	time	19 5	31 0	20 5	32 8	19 2	30 8	—
(unclassified) .....	piece	21 9	34 9	—	—	—	21 1	33 9
Ring spinners .....	time	14 10	23 9	19 0	30 5	14 1	22 6	18 3
Reelers .....	piece	—	—	19 3	30 9	14 7	23 4	—
Doublers .....	time	14 9	23 8	—	—	13 2	21 10	—
Winders .....	piece	—	—	—	—	13 0	20 10	—
Beam warpers .....	time	14 7	23 7	16 0	25 7	14 1	22 6	—
Weavers { 2 looms .....	piece	19 7	31 3	23 2	35 10	19 9	31 7	—
3 "	14 1	22 6	13 2	21 1	14 8	23 5	12 4	19 9
4 "	17 11	28 7	18 8	29 10	18 3	29 2	19 11	31 10
6 "	21 6	34 4	24 9	39 7	22 10	36 6	25 3	40 5
Other women .....	time	15 4	24 6	14 4	22 11	13 7	21 8	31 9
Reelers .....	piece	16 9	26 9	18 9	30 0	15 3	24 8	50 9
Full timers [Reelers .....	piece	9 5	15 0	—	—	10 1	16 1	—
Winders .....	time	7 7	12 1	—	—	—	—	—
Weavers { 2 looms .....	piece	10 8	17 0	11 8	18 8	9 7	15 4	14 3
3 "	11 0	17 7	12 6	20 0	11 10	18 11	12 4	19 9
4 "	16 7	26 6	18 7	29 8	16 5	26 3	18 4	29 4

\* Average earnings for full time pre-war.

## IN LANCASHIRE COTTON INDUSTRY

Manchester, September 8th, 1923.

Leigh district.		Manchester district.		Oldham district.		Preston district.		Rochdale district.		Stockport district.	
Atherton, Hindley, Leigh, Tyldesley and Westhoughton		Manchester, Pendlebury, Salford and Swinton		Chadderton, Crompton, Failsworth, Ices, Middleton, Oldham, Royton, Shaw and Springhead, Uppermill and neighbourhood	Adlington, Chorley and neighbourhood, Freckleton, Horwich, Longridge, Preston, Ribchester and Walton-le-Dale	Bury, Heywood, Littleborough, Milnrow, Radcliffe, Ramsbottom, Rochdale, Tuttington, Wardle, Whitefield, Whitworth, Todmorden and neighbourhood		Bury, Heywood, Littleborough, Milnrow, Radcliffe, Ramsbottom, Rochdale, Tuttington, Wardle, Whitefield, Whitworth, Todmorden and neighbourhood		Compstall, Denton, Hazel Grove, Hollinworth, Hyde, Marple, Stockport and Glossop	
*	†	*	†	*	†	*	†	*	†	*	†
s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
39 9	63 7	41 3	65 11	42 1	67 4	35 3	56 3	38 0	60 9	38 10	62 1
48 4	77 4	45 3	72 5	46 3	74 0	38 4	61 3	37 9	60 5	42 4	67 9
43 9	70 0	36 7	58 6	37 7	60 1	37 0	59 3	33 8	53 10	—	—
—	—	—	—	39 9	63 7	45 4	72 6	40 5	64 8	42 7	68 1
48 6	84 10	28 11	50 7	30 11	58 2	28 6	49 10	19 3	33 8	26 0	43 6
48 0	78 10	40 1	64 0	41 8	66 8	37 10	60 6	39 9	63 7	37 5	60 11
48 6	74 5	47 6	76 0	42 11	67 4	38 10	62 1	42 10	68 0	47 11	75 8
13 7	24 11	16 0	25 7	19 7	31 4	17 10	28 6	19 11	31 10	19 0	30 4
—	—	49 2	78 5	41 2	65 10	—	—	—	—	—	—
—	—	37 3	59 5	44 11	71 10	—	—	42 2	67 3	—	—
—	—	—	—	—	—	42 10	68 6	38 7	61 8	41 5	66 3
—	—	25 9	41 2	—	—	37 0	59 3	35 10	57 4	—	—
—	—	25 0	40 0	—	—	25 4	40 6	24 10	39 9	22 5	35 10
—	—	—	—	—	—	30 2	48 3	30 1	48 1	—	—
—	—	—	—	—	—	23 9	38 0	18 9	26 9	—	—
—	—	—	—	—	—	19 2	30 8	20 9	33 2	26 10	42 11
—	—	—	—	—	—	20 10	33 4	23 4	37 4	23 3	36 2
25 6	40 10	25 6	40 9	25 8	41 1	24 10	39 9	30 11	49 3	—	—
35 9	57 2	35 2	56 3	35 6	56 9	32 8	52 3	33 1	52 11	32 6	52 0
30 0	48 0	29 11	47 10	35 2	56 3	28 2	45 1	30 0	48 0	30 6	48 9
14 2	22 8	15 5	24 8	18 9	30 0	15 5	24 8	17 3	27 7	14 11	23 11
9 9	15 7	7 10	12 6	14 0	22 5	9 2	14 8	13 0	20 9	11 4	18 1
14 3	22 8	—	—	—	—	16 8	26 8	16 1	25 9	—	—
17 10	28 6	18 4	20 4	22 0	36 4	10 5	31 1	21 9	34 9	21 5	34 3
18 3	26 0	17 10	28 6	22 2	35 5	10 3	31 1	21 2	33 10	19 11	31 10
16 9	26 0	16 10	26 11	20 9	33 2	19 2	30 8	19 11	31 10	19 5	31 0
16 6	26 5	16 7	26 6	10 8	31 4	19 8	31 5	19 2	30 8	19 0	31 7
11 11	19 0	—	—	19 2	30 7	—	—	16 8	26 8	—	—
—	—	—	—	21 10	34 11	—	—	—	—	—	—
—	—	13 2	21 1	16 4	26 1	18 5	29 5	16 3	25 11	14 9	23 6
—	—	12 9	20 5	16 3	26 0	—	—	16 4	26 1	16 10	26 11
12 6	20 0	13 0	22 0	14 9	23 7	—	—	18 3	26 0	14 0	22 5
—	—	12 10	20 6	16 7	26 6	—	—	15 3	24 5	14 7	23 4
16 7	26 6	13 4	21 4	15 3	24 5	15 11	25 5	15 11	25 5	14 10	23 9
16 8	26 8	17 3	27 7	20 8	33 0	21 7	34 6	22 3	35 7	21 5	34 3
10 6	18 9	11 7	18 6	12 6	20 0	13 1	20 11	16 8	26 8	12 7	20 1
15 9	23 2	15 4	24 6	16 7	26 6	18 10	30 1	17 0	27 3	18 6	29 7
20 0	32 0	20 4	32 6	21 3	34 0	23 1	36 11	22 7	36 1	22 2	35 5
13 3	21 2	13 3	21 2	15 2	24 3	13 8	21 10	13 8	21 10	14 1	22 0
12 6	20 0	16 2	25 10	19 2	30 8	19 9	31 7	20 8	33 1	22 5	35 10
8 8	13 10	9 7	15 4	10 11	17 5	—	—	11 11	19 1	9 1	14 5
—	—	9 1	14 6	10 11	17 5	13 3	21 2	10 7	16 11	9 0	14 4
10 10	17 4	—	—	11 4	18 1	12 5	19 10	10 3	17 1	11 1	17 9
—	—	—	—	16 1	25 9	18 4	29 4	15 9	25 2	16 11	27 1
—	—	—	—	—	—	22 2	35 5	19 0	30 5	20 0	32 0

† Average present earnings based on pre-war wages.

# Egyptian Cotton.



## SUPPLY AND DISTRIBUTION OF EGYPTIAN COTTON.

In Running Egyptian Bales

*Compiled by the Merchants National Bank of Boston, Mass.,  
Industrial Service Department*

### SUPPLY

		1920-1921	1921-1922	1922-1923
Carry-over Sept. 1 :				
In Warehouses and Afloat :				
Interior Egypt .. .	20,000	150,000	142,000	
Alexandria .. .	58,000	244,000	178,000	
Continental Ports .. .	8,000	14,000	10,000	
United Kingdom Ports .. .	41,000	73,000	97,000	
United States Warehouses.. .	56,000	35,000	33,000	
Afloat .. .	5,000	13,000	17,000	
Total .. .	183,000	529,000	477,000	
In Mills :				
Continent .. .	47,000	39,000	54,000	
United Kingdom .. .	94,000	57,000	62,000	
United States .. .	75,000	11,000	37,000	
Elsewhere .. .	88,000	21,000	20,000	
Total .. .	254,000	138,000	182,000	
Total Carry-over	437,000	687,000	639,000	
Production .. .	800,000	707,000	760,000	
Total Supply .. .	1,237,000	1,394,000	1,419,000	

### DISTRIBUTION

		1920-1921	1921-1922	1922-1923
Consumption :				
Continent .. .	145,000	210,000	315,000	
United Kingdom .. .	287,000	336,000	420,000	
United States .. .	103,000	149,000	180,000	
Elsewhere .. .	81,000	58,000	60,000	
Total .. .	516,000	748,000	973,000	
Carry-over Aug. 31	687,000	659,000	444,000	
*Adjustment .. .	+34,000	-13,000	—	
Total Distribution .. .	1,237,000	1,394,000	1,419,000	

\* This adjustment is due to discrepancies between various records used.

## Egyptian Cotton Statistics.

The movement of the Egyptian cotton crop has been recorded so far by the Alexandria General Produce Association with the help of very elementary statistics furnished by the Egyptian Customs for the exports, and the State Railways Alexandria Goods Station as regards the arrivals.

A few years ago the Statistical Department of the Egyptian Government started publishing figures of the monthly shipments of ginned cotton from interior points by rail and water, statistics which were practically useless as they were always distributed two months later.

Up to now these were the only official statistics available and for any further information the cotton world had to rely upon the efforts of private firms who, with the limited means at their disposal, were very seldom able to satisfy the growing needs for more complete and detailed information.

All efforts to arouse the interest of the Government as to the need for reliable statistics proved unavailing. The Government's acreage estimates have been repeatedly proved wrong; both last year and this it has been unable to give us accurate figures of the acreage under cotton. The Statistical Department of the Ministry of Finance, which publishes this estimate, relies for its information on the returns of the local tax collectors (*sarrabs*), who are quite incompetent and fail to realize the necessity for accuracy. In response to numerous criticisms of its estimates, the Ministry promised us this season a measurement of the area under cotton, but a statement was published lately denying that such measurement had taken place and that the preliminary figures pointed to an acreage of 1,800,000 feddans. It is noteworthy that the above estimate was accompanied by a footnote "*subject to correction.*"

Since 1920 the large carry-over in the interior (invisible supply) has been a subject for controversy. The Government, pressed on all sides to give an estimate of the stocks in planters' hands and up-country warehouses, finally published a statement that these stocks at the 31st August, 1922, amounted to 289,009 cantars. Later events proved these statistics to be quite wrong and we have never been able to discover on what basis they were compiled.

Up to last August all cotton ginned was subject to a tax of P.35 per cantar ginned leaving the ginnery yard. From the 26th September this tax was reduced to P.25, and all cotton below low middling (Type 58 CCC), which comprises Afritas and Sekinas scarto, was exempted from payment. The writer repeatedly requested the Statistical Department to publish returns of how much cotton had arrived in Alexandria tax-free in order to arrive at the amount of spinnable cotton which actually reached Alexandria. The information desired should have been easy to obtain as all arrivals were examined in Alexandria for evasions of the law, yet no one seemed able to give this information and no one in official circles was interested in obtaining it.

Some statistics should be available of the rate at which the crop is being moved or marketed, yet when requested to give a census of the stocks at the principal interior points during the most active months of the year, one department shifts the onus for collecting these figures on to

another department, and no information except that through private sources was available, and that mostly inaccurate.

It has been repeatedly pointed out to the Government that it is of great importance to follow up the exact proportions of Sakel Uppers, etc., exported to various countries in order to regulate the supply of each cotton to the demand and prevent over-supply such as is to-day the case with Sakels. The statistics on this subject could very easily be collected by the Customs authorities obliging exporters to declare the growth exported on their export declaration form; but no such steps have ever been taken and private estimates on this point are largely a matter of guesswork. The writer was able to obtain, at infinite trouble, accurate figures as regards the U.S.A. consumption which to the 15th April, 1923, amounted to :

Bales 124,736	Uppers, and bales 70,488	Sakels, as against
„ 127,627	„ „ „	44,636 „ for the whole of 1921
„ 23,765	„ „ „	27,393 „ „ „ 1920/1

There have never been any figures collected of the proportion of each growth which composed the stock in Minet-el-Bassal. At intervals various private firms attempt to obtain information as to the amount of Sakels and Uppers lying in the hands of banks and merchants (but not including exporters). Needless to say, such statistics are rarely correct, and as they do not include exporters' stocks unsold to spinners the information imparted is of small value.

Six months ago the Cotton Exchange Governing Committee, an official body, approached the Government on the necessity for official detailed statistics on most of the above points and a meeting was arranged to have been held on the 7th July, at which the Cotton Exchange and representatives of the Government, merchants, and exporters were to discuss and decide this important point.

The subjects to be discussed at the meeting were to include the following :

The furnishing by the Government of

(a) Daily statistics on

1. Arrivals of unginned cotton in the up-country ginneries
2. Shipments of ginned cotton from the ginneries
3. Arrivals in Alexandria
4. Exports from Alexandria

*with separate figures for Uppers and the Delta.*

(b) Monthly statistics of stocks existing in

1. Upper Egypt at the end of October, December, February.
2. The Delta at the end of November, January, March.

(c) A monthly tally of the stock in Alexandria by varieties, i.e., Sakels, Brown Uppers, White, etc., excluding steam pressed cotton, the stock of which will be given each week.

This important meeting was never held, and we start upon a new cotton season with a dearth of statistical information unequalled in the present century. In such a small country as Egypt it should be very easy for the Government to collect all information it required, but whether we shall ever see this done remains to be seen.

G. PILAVACHI,

of J. G. JOANNIDES & Co.,

Alexandria.

ALEXANDRIA GENERAL PRODUCE ASSOCIATION FIGURES FOR WEEK  
ENDING 31ST AUGUST, 1923.

	ARRIVALS	EXPORTS			STOCK
		England	Continent	U.S.A.	
This week ..	cantars	bales	bales	bales	cantars
15,764	1,118	2,702	480	1,300	837,702
Same week, 1922 ..	15,354	4,100	1,914	1,403	10,728
Same week, 1921 ..	33,794	1,439	2,507	553	4,501
Since Sept 1, 1922 ..	6,639,078	408,771	380,345	204,038	943,149
Same time, 1921 ..	4,541	—	—	—	—
Same time, 1920 ..	23,413	40	367	—	407

## EGYPTIAN COTTON ACREAGE

(Figures of the Egyptian Government expressed in feddans)  
(1 feddan = 1.088 acres).

PROVINCES	1923-24	1922-23	1921-22	1920-21
Galioubiéh ..	53,962	53,089	51,641	60,707
Charkiéh ..	170,720	169,511	163,606	220,462
Dukahléh ..	192,160	192,596	169,483	238,384
Garbieh ..	364,350	372,390	311,376	153,703
Menouhéli ..	106,898	103,073	102,007	123,687
Déhéra ..	218,365	219,807	184,233	252,300
Total, Lower Egypt ..	1,007,255	1,111,306	1,012,340	1,378,503
PROVINCES				
Ghizéh ..	32,231	32,426	24,236	34,658
Béni Souef ..	63,254	60,443	56,678	77,207
Fayoum ..	91,007	92,180	82,113	88,920
Miniéh ..	105,411	102,348	89,903	148,151
Assiout ..	58,879	57,663	26,791	89,970
Ghirguéh ..	4,934	3,218	366	7,239
Ghénic ..	6,799	5,181	3,814	5,762
Assouan ..	732	300	2,078	2,370
Total, Upper Egypt ..	382,767	353,769	279,529	449,367
GRAND TOTAL ..	1,480,022	1,465,135	1,291,878	1,827,870
	Second Estimate 1,588,100	New Estimate "en bloc" 1,800,000	Revised figures.	

## EGYPTIAN MARKET REPORTS.

C. Tattersall & Co., 206, Royal Exchange, Manchester, report under date, September 11, 1923, as follows:

Since our last report nothing of special importance has occurred. Spinners have been content to buy more or less from hand to mouth, owing to the large stocks of cotton generally available. It will be remembered that last year, the first official report of acreage planted was given as 1,465,000 feddans and subsequently raised to 1,800,000 feddans. This year the first official estimate was also 1,460,000 feddans planted, but has since been revised to 1,525,000 feddans, every Province having

added its quota to the increase. It would appear that we shall again have a full crop, but owing to the shortage of American cotton, we must also expect a full consumption of Egyptian cotton, especially if the price differences between the two staples continue at anything like those recently ruling.

*Reinhart & Co., Alexandria, Egypt, report under date, 30th August, 1923 :*

The main feature this week is the fact that the Government have stopped buying spot cotton since last Friday under pretension of re-entering our market again in case of an eventual decline.

This attitude has left the former " bulls " undecided and the recent advance in America has left prices of our staple practically unchanged, stabilizing around \$32 $\frac{1}{2}$  for November and \$27 $\frac{3}{4}$  for October delivery.

The weeks' spot purchases have been satisfactory, amounting to about 6,000 bales. The demand was almost exclusively for Sakellaridis.

**NEW CROP.** The first arrivals from Upper Egypt are satisfactory. The ginning yield being from 1 to 2 per cent. lower than last year indicates a crop of good quality as far as staple is concerned. In fact the first lots sampled are very satisfactory in this respect.

**LOWER EGYPT.** With the exception of some cool nights, the temperature has been favourable. No fogs are as yet reported. Picking of Sakellaridis is expected to begin on September 15, which is about 10 days late.

The picking of Zagora, Pillion and other specialities will begin next week. Farmers are generally satisfied with these crops.

## Brazilian Cotton.

*F. Albrecht & Co., Liverpool, report under date, 6th September, 1923 :*

We are sorry to report that the prospects for the Brazilian cotton crop, which were favourably reported upon some months ago, have depreciated considerably.

We hear from the São Paulo district that less than 15,000 tons cotton will be produced and that the whole of it will be scarcely sufficient for the supply of local mills. Therefore, we cannot look forward to any considerable export during this season.

The reports from the north-west of Brazil are also less satisfactory. The crop in the Matta districts is late, and very little cotton has been offered so far. The Sertão and Serido crops also do not promise as well as they did some months ago.

Following we give you some extracts from cables and letters received from various correspondents, which may interest you :

*Letter from São Paulo, 31st July, 1923 :*

" We were hoping to ship to you some 600 to 800 tons good cotton, but this is now quite impossible. The visible stocks existing in the whole of Brazil on the 31st May last, were 6,892 tons ; stocks in the hands of spinners amounted to about 4,500 tons. We were expecting a crop of São Paulo of 22,000 tons, but, unfortunately, it will not even amount to 15,000 tons. Spinners, who were very short of cotton, commenced to buy when the crop started and covered themselves up to September, when they will have the Pernambuco and other northern

State crops to fall back on. This caused an advance in the prices of our cotton to 80\$000 and 85\$000 per arroba (15 kgs. equal to 33 lbs.) which makes business impossible. To-day, for example, Octobers in Liverpool are 12d. which, in our money, means 73\$000, more or less, Liverpool terms, whereas our price at present is 77\$000. We have no hope of lower prices here because the São Paulo and Rio mills alone will consume some 15,000 tons up to September, that is, practically the whole of the São Paulo crop. The general situation of the industry is not bad, and the mills are actively engaged in fulfilling their orders for yarn and cloth."

"NORTHERN CROP. This crop is estimated by the Ministry of Agriculture to yield some 90,000 tons, covering all qualities, and we do not expect entries to start until end of September."

*Cable from Parahyba, 2nd August, 1923 :*

"Receipts are very small. Sertão and Serido crop accounts are less favourable; damage has been caused by bad weather and rain is continuing. Crop is backward."

*Letter from Parahyba, 2nd August, 1923 :*

"NEW CROP. As written previously, a large and good quality Sertão and Serido crop seemed guaranteed with the probability of an early start in July or August. Rains were badly needed in the Matta (Brejos) districts for the development of the small plants, as this crop is only expected in September/October. The rains came in time and have steadily continued up to the present, largely benefitting the Matta crop. Unfortunately, however, against all expectations, about the middle of last month these rainfalls extended all over the Sertão and Serido districts. These regions had had their rainy period in January/February and the cotton was ready to be gathered in July, when, in fact, picking started. These July rains have now destroyed the bolls, which, after having been burnt by the sun, have rotted and fallen off with the leaves. Farmers will now have to wait for the cessation of the rains and the fresh development of the plants with the sun, so that, apart from a considerable reduction in the yield, new crop cotton may not be expected before September/October. Of course, some districts have suffered more than others. In the Serido district the damage has not gone so far, generally, as to absolutely destroy the present load of the cotton plants, but has deteriorated the quality of the cotton, already more or less matured. Therefore, a large percentage of lower quality cotton (mediums) are coming forward at present, and picking is retarded. Generally, the damage is not so bad as at first stated by the farmers, and we think that a normal sized yield may still be expected."

*Cable from Parahyba, 24th August, 1923 :*

"Cotton coming in at present is good in quality and staple."

*Cable from Parahyba, 4th September, 1923 :*

"Receipts very small."

Prices on the other side are high, and so far very little business has been done on this market. We have sold small quantities, and we hear that other firms, who are connected specially with São Paulo, can offer nothing, and the same can be said of offers from the North.

## East Indian Cotton

### FIRST COTTON FORECAST, 1923-24.

*Calcutta, August 21, 1923.*

This forecast is based upon reports on the condition of the cotton crop at the end of July and early August. The reports do not, as will be seen from the detailed notes below, relate to the entire cotton area but to only 78 per cent. of the total.

The returns so far received show that an area of 12,373,000 acres has been sown this year, as against 12,511,000 acres (revised figure) at this date last year, or a decrease of 1 per cent. Sowings were delayed owing to the late arrival of the monsoon.

As against the corresponding estimate of last year, the figures show an increase of 50 per cent. in Mysore, 35 per cent. in Gwalior, 31 per cent. in Madras, 23 per cent. in Burma, 12 per cent. in the Punjab, 8 per cent. in Central India, 6 per cent. in Rajputana, 4 per cent. in the Central Provinces and Berar, 3 per cent. in Bombay and 1 per cent. in Bihar and Orissa ; on the other hand there has been a decrease of 60 per cent. in Ajmer-Merwara, 50 per cent. in Delhi, 28 per cent. in Hyderabad, 15 per cent. in the United Provinces, 10 per cent. in the North-West Frontier Province, 4 per cent. in Baroda, and 1 per cent. in Bengal.

Climatic conditions at sowing time were, on the whole, favourable, and the present condition of the plants is generally good.

Detailed figures for the Provinces and States are as follows :

#### FIRST FORECAST, AUGUST.

PROVINCES AND STATES	ACRES (THOUSANDS)		
	1923-24	1922-23	1921-22
Bombay-Deccan (including Indian States) .. . . . .	1,383	1,344	1,227
Central Provinces and Berar .. . . . .	4,646	4,474	4,306
Madras .. . . . .	165	126	114
Punjab (including Indian States) .. . . . .	1,382	1,286	1,254
United Provinces (including Kampur State) .. . . . .	601	711	1,016
Burma .. . . . .	320	267 (a)	302
Bihar and Orissa .. . . . .	76	75	74
Bengal (including Indian States) .. . . . .	70	71	67
Ajmer-Merwara .. . . . .	4	10	5
Assam .. . . . .	88	88	39
North-West Frontier Province .. . . . .	17	19	19
Delhi .. . . . .	1	2	3
Hyderabad .. . . . .	1,635	2,314	1,904
Central India .. . . . .	854	787	662
Baroda .. . . . .	428	442	331
Gwalior .. . . . .	445	380	274
Rajputana .. . . . .	275	259	216
Mysore .. . . . .	9	6	6
Total .. . . . .	12,373	12,511 (a)	11,969

(a) Revised.

\* Excluding Gwalior which has been shown separately.

A statement showing the present estimates of area classified according to the recognized trade descriptions of cotton is given below :

Description of Cotton	1923-24		Acres (thousands)	1922-23
	1923-24	1922-23		
<b>Ornras :</b>				
Khandesh .. .. .. ..	1,271	..	1,116	
Central India .. .. .. ..	1,299	..	1,117	
Barsi and Nagar .. .. .. ..	†1,700	..	1,582	
Hyderabad Gaorani .. .. .. ..	(b)	..	924	
Central Provinces and Berar .. .. .. ..	4,646	..	4,474	
Total .. .. .. ..	<u>8,976</u>	..	<u>9,213</u>	
Dholleras .. .. .. ..	93	..	93	
<b>Bengal-Sind :</b>				
United Provinces .. .. .. ..	601	..	711	
Rajputana .. .. .. ..	279	..	269	
Sind-Punjab .. .. .. ..	948	..	800	
Others .. .. .. ..	79	..	79	
Total .. .. .. ..	<u>1,907</u>	..	<u>1,859</u>	
American-Punjab .. .. .. ..	432	..	437	
Broach .. .. .. ..	328	..	349	
Coompta-Dharwars .. .. .. ..	8	..	8	
Westerns and Northerns .. .. .. ..	42	..	39	
Cocanadas .. .. .. ..	6	..	29	
Tinnevellys } .. .. .. ..	101	..	66	
Salems } .. .. .. ..	458	..	398 (a)	
Combodias } .. .. .. ..				
Comillas, Burmas and other sorts .. .. .. ..				
<b>GRAND TOTAL</b> .. .. .. ..	<b><u>12,373</u></b>	..	<b><u>12,511 (a)</u></b>	

(b) Included under Barsi and Nagar.

† Includes the whole of cotton grown in Hyderabad, details not being available.

## MANCHESTER MARKET REPORT.

*Baerlein & Sons, Ltd., Manchester, report as follows, under date 5th September, 1923 :*

### MANCHESTER COTTON PIECE GOONS.

Business in cloth was progressing steadily in limited quantities until the spurt in American cotton quotations of the 31st August, followed by dearer yarn prices and higher quotations for goods caused a pause in buying. Here and there some pending transactions were brought to book in special lines for China, the Home Trade and Continent, but not for India. The market is now extremely quiet, probably under the influence of dearer prices and the political friction between Italy and Greece.

### MANCHESTER COTTON YARNS.

The position since our last report remains unaltered. There is a certain amount of distrust of the Bureau estimate of the condition of the American crop, and the disposition is to sit tight and wait until the price of the raw material is more settled. India continues to send along very low offers, but only a very few go through. The Near East still buys Extra Hards, but other spheres of overseas consumption offer no feature of interest. The demand for Egyptian counts remains very quiet indeed.

Spot cotton is quoted 15·55 against 15·78 in our last.

Silver, 31 $\frac{1}{16}$ d. Bank Rate, 4 per cent.

*The following is the original article in French.*

#### TISSUS DE COTON DE MANCHESTER.

Les affaires en tissus s'étaient améliorées graduellement par quantités limitées jusqu'à ce que la nouvelle hausse du coton américain, qui a eu lieu le 31 août, suivie de prix plus chers pour les filés et des cotations plus élevées pour les tissus, donnait lieu à une pause dans les achats. Ça et là quelques affaires en suspens pour certaines spécialités ont été amenées à bonne fin tant pour la Chine que pour notre pays et le Continent, mais rien pour les Indes.

Le marché est actuellement extrêmement calme, probablement sous l'influence des prix plus élevés et de la friction politique entre l'Italie et la Grèce.

#### FILÉS DE COTON DE MANCHESTER.

La situation reste à peu près inchangée depuis notre dernier rapport. Il y a une certaine méfiance du devis publié par le Bureau Cotonnier Américain concernant la condition de la récolte américaine et la tendance est de s'abstenir autant que possible de faire des achats et d'attendre jusqu'à ce que le prix de la matière première devienne plus stable.

Les Indes soumettent toujours des offres très basses, mais il n'y a eu que quelques offres amenées à bonne fin. Le Proche-Orient continue ses achats de filés extrahard, mais les autres débouchés étrangers restent très calmes. La demande pour filés Jumel reste sans activité, ce genre étant très peu recherché actuellement.

Le coton disponible Amérique se cote aujourd'hui 15·55 contre 15·78 dans notre dernier rapport.

L'Argent se cote,  $31\frac{1}{16}$ d. Taux en Banque, 4 pour cent.

## Reviews of Cotton Publications.

"COTTON AND THE COTTON MARKET," by W. Eustace Hubbard, is a book recently published by D. Appleton & Co., New York and London, at \$3·50. The author is a member of the well-known cotton firm of Hubbard Brothers & Company, New York ; he follows the cotton crop from field to mill in 37 chapters, dealing with cotton production, marketing, hedging and speculation. The book is written in an easy style and most readers will find that once they start they cannot leave off reading it. The chapters dealing with the conditions of cotton production in U.S.A. are extremely interesting ; the author criticizes his compatriots because the "South has been apt to look upon all talk of foreign competition as far-fetched, and to believe it to be a sort of propaganda against high prices. We must admit that a survey of the rapid growth of foreign competition in the high prices of 1919 and 1920 furnishes a strong argument against the benefit the South was supposed to derive from such prices of cotton. At the same time, a survey of competition (in cotton production) is no argument to the end that the south should raise cotton at a loss, or at a very small profit in order to retain her monopoly. If the results of the present situation is that unfortunate conclusion, then the South has

already lost her cash crop, and had best look round for a substitute." And again : " A return of anything like pre-war consumption means a return to very high prices . . . and that spells an immediate increase in the foreign crops. . . . The world is not going to do without cotton and it is going to secure that cotton at a price which will enable clothing to be made on a basis with other commodities." Travelling through the American cotton belt quite recently, it appeared to the reviewer that, at all events, east of the Mississippi, owing to the boll-weevil, army-worm, migration of negro, etc., the cost of producing cotton with a reasonable profit has become so high that the cotton spinners, not only of Europe, but also of U.S.A., must look to other sources of supply. Mr. Hubbard thinks that the Government has found a method to control the weevil, and the use of that method is certain to become widespread, but we are of different opinion as to the general application of the method and certainly the world cannot wait for the general introduction of the remedy.

Mr. Hubbard considers that the present untidy and slovenly made-up cotton bale is not a very wasteful product ; with this cotton spinners will not agree. There are also some few other views expressed which the spinner will not share, but nevertheless the book is a most informative compendium. It gives the actual experience of a practical man who has got to know the various points dealt with from his active and diversified employment ; the many examples he cites from his own experience and the general style of the presentation of the subject are refreshing and instructive. The very detailed index makes the book an extremely useful work of reference which should be in the possession of every cotton buyer, seller and mill manager. Technical colleges will do well to adopt it as a text-book in their classes. It is to be hoped that the second edition will be enhanced in its usefulness by the introduction of illustrations which would enable the many readers who are not able to visit the cotton belt of U.S.A. to obtain a still more impressive view of the South.

ARNO S. PEARSE.

" INDIA AND THE SUDAN AS SOURCES FOR INCREASING THE RAW COTTON SUPPLIES." The British Cotton Growing Association has just published a full report of the recent journey of its General Manager (Mr. W. H. Himbury). Most of the salient points of Mr. Himbury's findings have already been published in the Press, but many will welcome the report for reference purposes. As regards India, the author concludes :

" I am optimistic enough to say that if the business is properly tackled, in five years India should produce 6,000,000 bales of cotton, 2,000,000 of which should have a staple of  $1\frac{1}{6}$  in., against the present production of 5,000,000 bales, not quite 500,000 of which come under the higher class."

And as regards the Sudan, Mr. Himbury's opinions are :

" The Sudan has truly the making of a great cotton growing country. That it will finally develop into one, I am convinced—because we shall get our water and solve our insect pests and disease troubles."

" COTTON GROWING IN SOUTH AFRICA." This report by Mr. G. F. Keatinge, C.I.E., has just been issued by the Empire Cotton Growing Corporation. The author has recently made an extensive tour of South Africa and deals thoroughly with the temperature, rainfall, soil and agricultural conditions and analyses the prospects of the Transvaal,

Swaziland, Lobombo Flats, Natal and Zululand, etc. Mr. Keatinge, who was formerly Director of Agriculture in the Bombay Presidency, has had extensive experience in cotton growing and presents a highly instructive report which will be read with interest by cotton growers and spinners. His conclusions are that "if adequate measures to encourage cotton growing are taken, the following production of cotton may reasonably be anticipated in the course of the next twenty years :

Areas based on Komatiport		Bales	Main Cotton Belt
	Rustenburg-Waterberg tract .. . . . .	100,000	
	Spelonken area .. . . . .	20,000	
	Tzaneen-Slati area .. . . . .	10,000	
	Acornhoek area .. . . . .	15,000	
	Malelane area (Komati Ward) .. . . . .	5,000	
	D Kaap Valley .. . . . .	6,000	
	Nelspruit and White River Settlement .. . . . .	4,000	
	Swaziland .. . . . .	30,000	
	Lobombo Flats .. . . . .	50,000	
	Zululand .. . . . .	30,000	
	Vryheid District .. . . . .	15,000	
	Other parts of Natal .. . . . .	5,000	
	Total .. . . . .	<u>290,000</u>	

"On a consideration of all the facts, I would venture to guess that during the next twenty years, cotton production in South Africa may be stimulated to the extent of about a quarter of a million bales, and that the ultimate expansion may amount to half a million bales. If anyone contends that it can reach a million bales I should not be disposed to say that this is not so ; but such a development would necessitate a very great subdivision of the existing farms and a considerable degree of concentration of cotton on the limited areas that are suitable for it."

"BLUE BOOK OF SOUTHERN PROGRESS—1923" is the title of a compilation of statistics, mainly on cotton growing and manufacturing in the Southern States of U.S.A., issued by the *Manufacturers' Record*. The accompanying articles are all tinged with extreme optimism as to the progress achieved and the future prospects. The European cotton student will know at what discount he has to take such articles ; several of them belittle the results of cotton growing obtained in other parts of the world. It is astonishing that some Americans do not realize that, if their progress in the cotton spinning industry will be as rapid as during the last years, they will shortly be very grateful for all the cotton pioneer work that is being undertaken in other countries. The Americans are already using Egyptian, Peruvian, Brazilian, East Indian and even Chinese cotton, and as they are within measurable distance of consuming all the cotton which their own country can produce their consumption of these cottons is likely to increase. The last annual report of the British Cotton Growing Association and the paper read by an American, Mr. W. Irving Bullard, entitled "Brazil—The Promising Land," as well as the recent article on "Brazil and Her Cotton Possibilities," published in the *Manchester Guardian Commercial*, are the best replies that can be given to the article "A Hundred Years of Struggle by Europe to Lessen its Dependency upon the South for Cotton," contained in the BLUE Book.

The statistical tables are mainly extracts from the Bureau of the Census publications and are therefore reliable ; the handy form in which the figures are presented makes the book suitable for reference ; the price of the publication, 50 cents, is very reasonable.

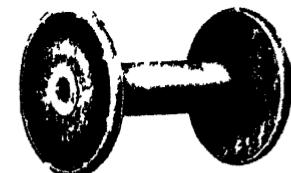
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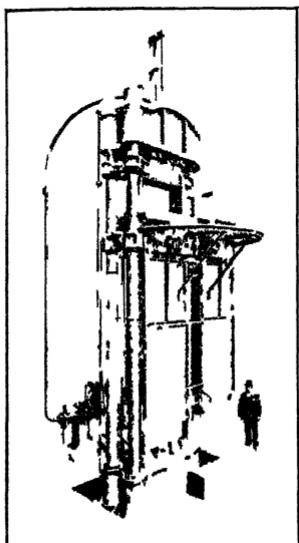
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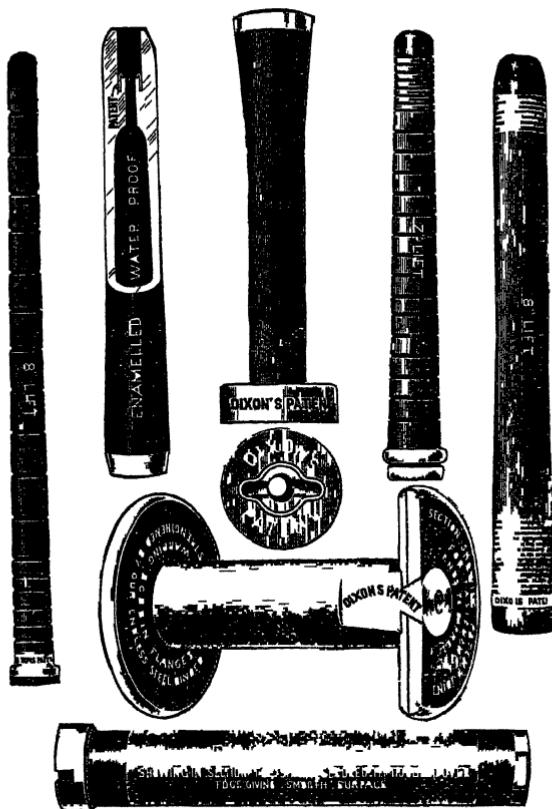
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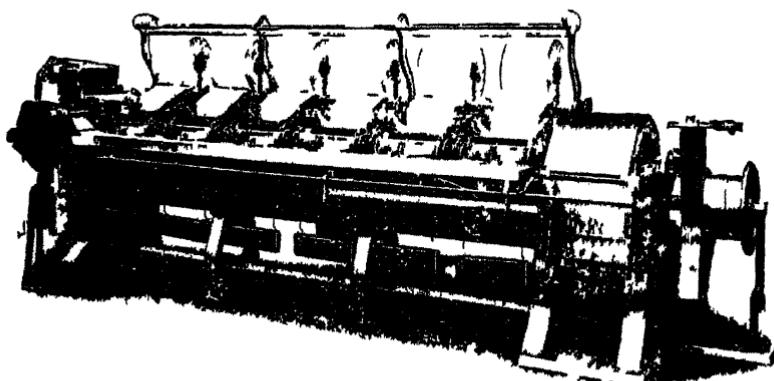
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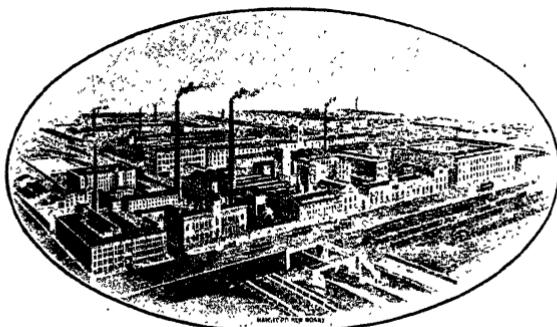
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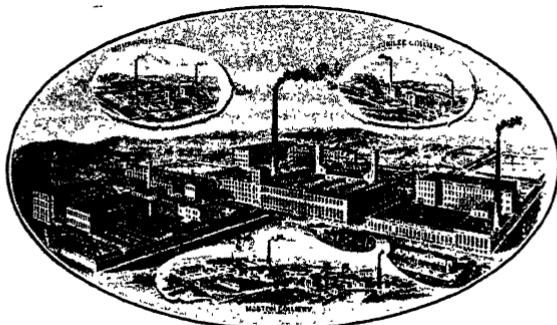
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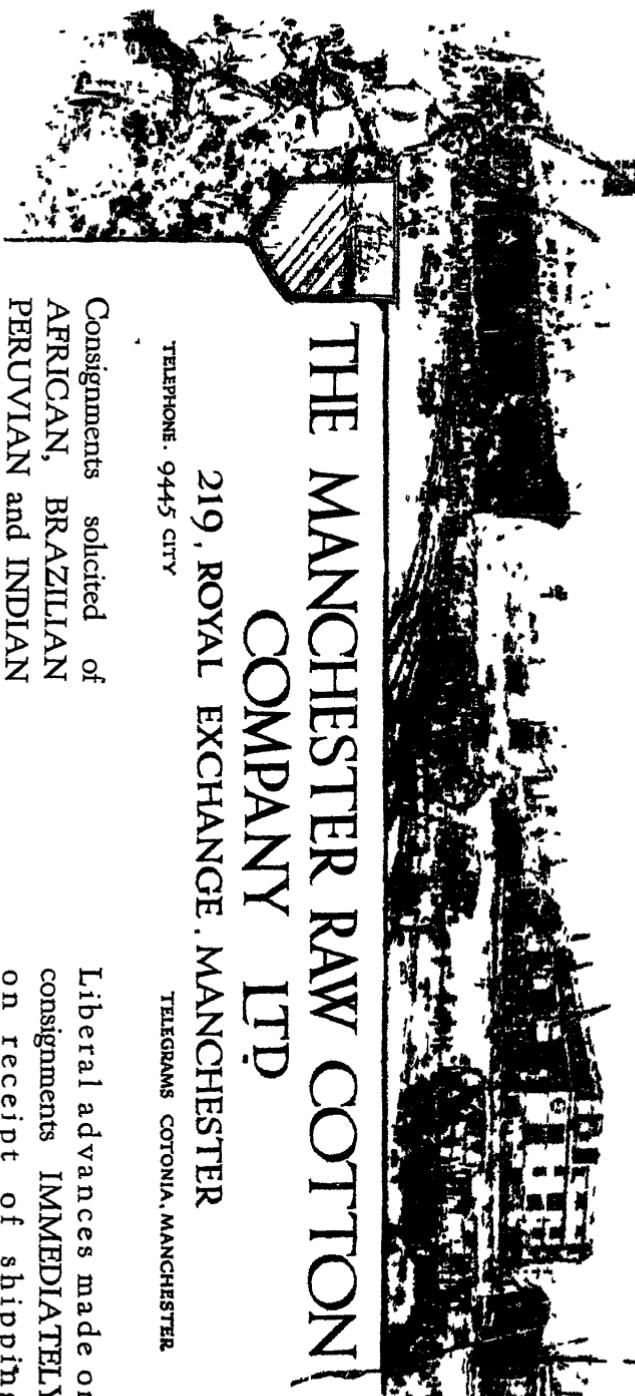
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# INTERNATIONAL COTTON BULLETIN

No. 6

December, 1923

*Published by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester. Edited by Arno S. Pearse, General Secretary, Manchester. The Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations wish to point out that they do not hold themselves responsible for the statements made or the opinions expressed by individuals in this Bulletin.*

## Items of Special Interest in this Number:—

THE BOLL-WEEVIL PROBLEM IN U.S.A.

AMERICAN COTTON TALKS.

STATISTICS OF PRODUCTION, CONSUMPTION AND CARRY-OVER.

COTTON GROWING IN ALL PARTS.

STATE OF TRADE REPORTS.

CONGRESS PROGRAMME.

FORTY-EIGHT HOUR WEEK IN U.S.A.

Extract from the MINUTES of Meeting of Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations, held at the Victoria Hotel, Northumberland Avenue, London, W.C.2, October 12 and 13, 1923.

Mr. JOHN SYZ (Switzerland) occupied the Chair and there were present :

Messrs.

Count Jean de Hemptinne, Belgium	Sir Thomas Smith, India
Frederick Holroyd } England	G. Mylius, Italy
F. A. Hargreaves }	Konosuke Seko, Japan
Paul Schlumberger, France	A. E. Håkanson, Sweden
Joan Gelderman, Holland	J. H. Hermann Buhler (Switzerland)

representing the Committee, and in addition :

Messrs. Arthur Foster, R. A. de la Beaumelle and Arno S. Pearse.

Apologies for non-attendance were received from the remaining members of the Committee : Messrs. Arthur Kuffler (Austria), Santiago Trias (Spain), Dr. Arnost Zucker (Czecho-Slovakia) and John Pogson.

In opening the meeting, the Chairman expressed the sympathy of the Committee to Mr. Konosuke Seko and the Japanese nation on the terrible calamity which had befallen Japan through the recent earthquake.

The President also welcomed Sir Thomas Smith, the representative of India, who attended for the first time the meetings of the International Committee.

The Minutes of the last meeting were taken as read and approved, having been previously circulated.

### STATE OF TRADE:

Mr. F. HOLROYD (England) reported that since the meeting at Lucerne in April, there had been no improvement and spinners in the American section were selling, in most cases, below the cost of production; in the Fine Spinning Section mills were able to work without a loss. In the American Section there were certainly not more than half the spindles working and he described the outlook as being very gloomy indeed.

SIR THOMAS SMITH (India) stated that the advices he receives from India show that stocks in the mills are accumulating. The Bombay mills have been able to work with a profit up to June, but probably the second half of the year would show losses that would counterbalance profit made in the early part of the year. The very latest cable reports from India indicate a slight reduction in the stocks. The monsoon had been quite good and consequently the purchasing power of the country was likely to be fair, and the general outlook was not unsatisfactory. The Indian native, however, is not able to pay a premium of about 120 per cent. on pre-war rates for manufactured goods as long as he receives only about 33 per cent. more for his agricultural products. Sir Thomas Smith emphasized the need for growing cotton in other countries besides the U.S.A., and he thought India might do a great deal more in supplying additional quantities of cotton.

COUNT JEAN DE HEMPTINNE (Belgium) said that yarn prices were very unsatisfactory; practically all spinners were selling at a loss. The actual price of cotton is of very little consideration to the spinner, the sterling rate of exchange was for them the dominating factor. The weaving section of the industry was doing much better than the spinning section. Wages had been increased by another 5 per cent. The export trade was good.

P. SCHLUMBERGER (France): The conditions are very similar to those of Belgium. Spinners sell at cost—weaving mills are doing better. Wages have more or less been increased by 5 per cent. Exports are going mainly to the Levant. The difficulty is the exchange question, which makes business very hazardous. No trouble is experienced with labour, only a few individual strikes of short duration have taken place. Coal is still very high in price. There is no unemployment, some mills work full time, others have from 10 to 20 per cent. of the machinery stopped, principally on account of the lack of labour.

F. A. HARGREAVES (England): The depression in the Cotton trade which has continued so long, and which has been so harmful to employers and employees alike, is undoubtedly the worst which has ever befallen either the spinning or the weaving sections of the cotton industry, and but for the profits which were made during what was called the "boom,"

the capital of many employers would, by subsequent losses, have been extinguished long since, and if the depression continues much longer it is feared that many firms who are living in hopes of an improvement will not be able to weather the storm.

Many employers are to-day at their wits' end to know how to keep their mills running, even on short time, and the trade which is being done at present is for the most part on a very unremunerative basis, and the prospect of an appreciable improvement is not in sight. In a great many cases where the mills have been working the losses incurred have been greater than what they would have been if the mills had been wholly closed.

It is generally assumed that our productions are badly needed, but the length of the period of depression clearly demonstrates that our customers have not the means to buy at the price at which we can afford to sell. Employers generally would rejoice if they could only see the prospect of their mills being started on full work at prices at which they could hold their own, even although it might be some time before they were able to secure trade at prices which would give any return on their capital.

So long as the cost of our productions are twice to three times what they were in pre-war days, it cannot reasonably be expected that we can do the same volume of trade, seeing that the purchasing power of the consumers of cotton goods has not been increased to anything like the same extent. To put it in a nutshell, if the consumer in pre-war days had a shilling which they could expend in the purchase of clothing, and for that shilling they were able to get two yards of cloth, and if they are unable to expend more than a shilling to-day and for that shilling can only get one yard where they previously got two, it is obvious that a corresponding falling-off in demand must result, and full employment as in pre-war days is out of the question.

All those who take a calm and dispassionate view of the matter must realize that the only way to bring about increased employment is to lessen the cost of production to such an extent as will permit our goods being bought in much larger quantities by our customers, both abroad and at home. The large amount of unemployment, not only in the cotton industry, but in many other industries of this country, has also greatly reduced the purchasing power of our customers at home, and has had a serious effect on the home trade.

The high price of cotton, and the position as to the supply of raw cotton, is also very disquieting, and even if an improved demand for our productions should spring up, we might not, owing to a shortage of raw cotton, be able to take full advantage of it. It therefore needs all possible efforts to be directed to increase the supplies of cotton from any country in which it can be grown.

The present wages agreement had been extended. The employers may, after nine months from 1st June, give notice of a change in the rate of wages which are at present 95 per cent. over pre-war level, whilst the operatives can only take such action after a period of 18 months.

KONOSUKE SEKO (Japan) expressed his thanks for the sympathetic reference to the earthquake disaster and stated that the advices he had received showed :

*Totally burnt : 200,000 Ring Spindles, 30,000 Doublers.*

*Building collapsed, thereby damaged : 290,000 Ring Spindles, 70,000 Doublers.*

*Building half collapsed : 480,000 Ring Spindles, 80,000 Doublers.*

They estimate the time for repairing the damage as three to six months except the machinery burnt which will have to be replaced by new.

The Japanese cotton industry was working on a poor paying basis, due to the high cost of raw material and increases in the costs of labour. The Japanese mills rely mostly on the home market. Out of the 4½ million spindles, some 4,200,000 are working 19 hours per day, in two shifts of 9½ hours, against normal time of 21 hours, divided into two shifts of 10½ hours each, but stocks are accumulating. The earthquake will change conditions—over one quarter of all industries, viz., wool, machinery, electricity and shipbuilding are located in the devastated area. The new Factory Act which was to come into operation in 1924 was postponed until 1926, but in consequence of the earthquake it is quite possible that it will again be postponed.

A. E. HÄKANSON (Sweden) stated that there was little to add to the report he had given in Lucerne, except that the buying capacity of the Swedish consumers had been reduced owing to the failure of the grain crop. The export trade was decreasing; the wages are unaltered.

J. H. HERMANN BÜHLER (Switzerland) : His opinion was that since the Lucerne meeting the conditions in Switzerland had become worse as regards prices. During July/August they experienced a drop of from 5 to 6 per cent. in the rate of exchange, which was the cause of an improvement in the export trade, but since then exchange had again risen and exports had consequently fallen off. The unemployment in April was 50,000, but now it is only 20,000 to 25,000, and the textile mills are able to work 52 hours provided they apply individually every three months to the federal authorities for permission to work four hours more than the legal 48 hours per week. The operatives are working mostly the 52 hours at the same rate of pay as 48 hours. The basis of piece-work rates has been reduced accordingly.

JOAN GELDERMAN (Holland) : There has been no improvement during the last six months. Weavers particularly are in a bad position. Spinners are working full time but losing money; those using waste and Indian cotton are better off than the spinners working on American cotton. The home trade is very bad indeed and most mills confined to this trade are stopping one or two days per week. A great many of the looms in the country are stopped and there is a fairly large amount of unemployment. The Dutch employers gave their workpeople the option of accepting a 10 per cent. reduction in wages with a return to the 53-hour week in order to enable them to earn the same weekly wage, but they refused to work any longer than 48 hours per week. The employers have now given notice of a reduction in wages of 10 per cent. after October 27, and it is hoped that this reduction will be enforced without difficulties.

G. MYLIUS (Italy) : There is a stoppage amounting to 18·68 per cent. amongst the spinning section, but no organized short-time movement. A certain number of spinners are working below cost. The trade is engaged for about eight weeks. An improvement has set in as regards the exportation of yarn of coarse counts to the Near East. The weaving section is working without margin of profit. As regards wages, no reduction

has been made, but the employers have been able to obtain more advantages from the workpeople in other directions.

JOHN SYZ (Switzerland) : In the weaving section employment has been better since the Lucerne meeting, but it is still bad enough in staple goods. There has been a revival in specialities and the manufacturers in Switzerland find the Swiss yarns can compete favourably with those made in England. The textile industry is short of good operatives. As regards the 48-hour week, Mr. Syz explained that the legal working hours are still 48 and that overtime, according to the law, must be paid for at a wage and a quarter, but a Law has been introduced into Switzerland in cases where Swiss goods are faced with overwhelming foreign competition that individual mills may obtain from the federal authorities an extension of the working hours to 52 per week without the payment of the overtime. Generally permission is granted for three, but no more than six, months. Often the increase in working hours has not been accompanied by an increase in earnings and piece-work pay rate has been decreased  $8\frac{1}{2}$  per cent., which corresponds to the four hours increase, but conditions vary from one mill to another.

A new Law has been passed by the Government giving the possibility of extending the working hours to 54 per week, but the Labour Party have asked that this measure be put to Referendum in January next. This extension of working hours is meant to be only a temporary measure to last for three years, whilst the principle of the 48-hour week remains. As no doubt meanwhile other countries will take similar action, the whole question will have to be reconsidered later on.

#### AMERICAN COTTON CROP REPORTING MISSION:

Mr. ARTHUR FOSTER (Preston) then submitted a report of which the following are the salient points :

Having already presented a report in a condensed form through the medium of the INTERNATIONAL COTTON BULLETIN, it is only natural that various points in my report will be reiteration of former statements and especially in view of the exhaustive letters sent to the members of the Committee from the various places in the cotton belt.

You know, from the cabled report, that we first set out to investigate the general state of trade in America and the prospects of the same. We feel certain, judging from the latest reports to hand, that we had gauged that item correctly by cabling to you that *the American cotton industry would prosper again in August and that good general trade would follow*. The building trade continues to be heavily engaged and the recent returns show an increase in new contracts, especially for public buildings. There are large numbers of other industries allied with the building trade and cotton is one of them, as in every new building new furniture, upholstering, blinds, rugs, carpets and household linen are required. The automobile industry continues extremely busy for this season and cotton enters more and more into the manufacture of these machines.

The American cotton spindles now number more than 37 millions, of which an increase of  $5\frac{1}{4}$  million spindles has taken place since 1914. There are said to be in course of construction 1 million spindles, all situated in the South. The cotton consuming power of the American spindles is  $177\frac{1}{2}$  bales per thousand spindles, against England's 49 bales,

France 142, Germany 110, and only Italy, with 195 bales per thousand spindles exceeds the consuming power per spindle of the U.S.A. Last year's consumption of the U.S.A. of all kinds of cotton showed an increase of 836,000 bales against 1913. As the state of trade in the U.S.A. seemed to us, from the information obtained from various sources, for the coming year, to be as good as in the preceding one—unless some unforeseen economic change takes place—we felt justified in assessing the 1923/24 consumption of cotton in that country at least as high as in 1922/23, roughly  $6\frac{1}{2}$  million bales, of which  $6\frac{1}{4}$  will be American grown cotton. *That is an important figure to bear in mind when considering the available supply.*

In NEW YORK we found the merchants extremely "bearish." Out of the very large number whom we consulted, only two seemed to realize the actual position. In one or two cases we found that the men had made up their minds to be "bearish" and they did not want to hear any other argument; then again, one large merchant told us, that he was really a "bear" only so long as he was acting for his clients, and a "bull" when he did business on his own account. In short, our interviews in New York have taught us that the circulars of many of these firms must not be taken at their face value.

In WASHINGTON we obtained a good deal of information, especially on the Crop Reporting System, of which full particulars have appeared in the BULLETIN. The fact that farmers generally under-estimate the crop from 5 to 20 per cent. on an average over 15 years was very useful to us in discounting the information which we obtained from that class.

As regards our CROP INVESTIGATION, we decided to limit ourselves almost exclusively to farmers, ginners, crop reporting officials and local bankers for the information we had to gather.

We made up our minds from the start that the only way in which the fields could be inspected was to travel by motor-car and we covered in this way long distances in every cotton growing State, especially in Texas. We often undertook these trips in company with crop reporting officials who assisted us considerably in our task.

Our conclusions as to the state of the crop were cabled on 25th July as being  $11\frac{1}{2}$  million bales and a week later the Department of Agriculture came out with an indicated crop of 11,516,000 bales. Again, after the termination of our tour, we cabled on the 24th August our final estimate as being "round about" 11 million bales, and eight days afterwards the Department of Agriculture assessed the crop at 10,788,000 bales. The latest condition report of the Department of Agriculture, published on the 2nd October, confirms our figure more closely, it being 11,015,000 bales. We have every reason, therefore, to be satisfied with the result of our amateur crop estimating.

Our cables caused, at least in Lancashire and probably also on the Continent, an entire reversal from the spinners' general "bearish" attitude to the "bullish" side. Had the spinning industry not had our reports, it would certainly have continued—to its disadvantage—on the "bearish" side. There are some firms in Lancashire who have taken our advice and, as one of the Manchester newspapers expressed it, they have profited by it to the extent of  $4\frac{1}{2}$ d. per lb. Generally speaking, quite a number of big firms have acted on the information cabled, but unfortunately there are some who did not buy cotton,

thinking that we were handing to you the "dope" just as the Americans had given it to us. Others again considered that in face of the market conditions we should not have reported the truth, but of course such argument is ridiculous as such mode of procedure would have been almost a criminal offence on our part.

We feel, after hearing of the steps taken by many and judging by the development of events in the U.S.A. since our return, that we have not overstated the case and we can hardly be expected to be concerned as to the criticism of those who, unfortunately, have not acted in accordance with the information given. We are satisfied that the information given was honest, events since our return seem to indicate that our conclusions were singularly correct but, of course, circumstances may arise which will modify to some extent the final yield, for instance, a favourable autumn and late killing frost would have some effect on the size of the crop and also in the matter of grades. It was certainly due to a great deal of luck that our forecasts came so very close to the official figures, but some credit for the successful issue must be attributed to our carefulness and the sheer hard work which we applied in order to arrive at the true state of affairs.

One point perhaps deserves special mention : We cabled the following words : "We are lead to believe that Texas farmers will sell a good portion of their crop as quickly as it is ginned, which is likely to cause a fall in prices around September/October, but everything points to increasing prices later on," and again in our last cable we said that : "We were informed that lower prices are anticipated next month."

As to the higher prices later in the season, of this we have no doubt, as America cannot possibly yield a quantity of cotton adequate even for the very moderate rate of consumption to which the world's cotton industry has during the last year been accustomed. The spinners' returns indicate that with all the short time and a depressed state of trade, 12,710,000 bales of American cotton were consumed. The carry-over is reduced to as low a figure as is wise ; at the outside, it might be reduced by 250,000 bales. Therefore, it appears that we must adapt our consumption of cotton to what is being produced, namely, roughly 11 million bales plus a possible 250,000 bales. This is bound to mean a scramble for cotton, even if Lancashire is to reduce still further by as much as three-quarter million bales its consumption during the present season. Of course, such drastic curtailment is hardly to be thought of as already we are using only half our normal American cotton quota.

The setback referred to above has not eventuated as early as was indicated by our informants, because the mill stocks had become abnormally low and spinners rushed into the market to buy the cotton as soon as it was ginned. Our information was that the local bankers would not consent to a prolongation of the farmers' drafts and that consequently in Texas alone a million bales would be brought into the market about the 1st October, and this would naturally have caused a setback under normal conditions, but in view of the very strong demand, lack of contracts, scarcity of spot cotton, speculation and the fact that outside growths are hedged with American Futures, the reduction in price is not likely to be so serious as we were given to understand. What is called in America "the buyers' strike of goods" is not likely to start if they are made with cotton costing 30 cents, perhaps only at 35 cents ; this applies

solely to the United States, the rest of the world has already reduced its consumption to as low a level as it seems possible to do.

We want you to bear in mind that the staple and grade will be much affected by the drought in Texas and the excessive rains in other parts.

As regards the BOLL-WEEVIL, there is no doubt that the pest has come to stay unless some new, still unknown, remedy is devised that can be universally used and in order to fulfil this it must be cheap, easily applicable and effective. Calcium arsenate, the only poison used on an extensive scale (1,500,000 acres are being treated out of the 38,000,000) is not cheap ; the cost of fertilizing the ground in order to hasten maturity, plus the cost of poison is between nine to ten dollars per acre. Poison should not be used if the cost of the calcium arsenate, the cost of the labour to apply it, and the depreciation on the dusting machines will total more per acre than the current value of 100 lbs. of seed cotton. The application of the poison is certainly difficult as you will have seen from the photographs in the last BULLETIN, and you must remember that the dusting process can only be applied when there is no wind and that means mostly at night. Then again, after a rainfall the fields must be dusted afresh. As regards the effectiveness of calcium, all we can say is that on one plantation, where this calcium dusting process is thoroughly carried out, half a bale an acre was lost this year in spite of it. Dry hot weather is the best means of killing the boll-weevil, but unfortunately this same kind of weather is the enemy of the proper development of the plant. It seems, therefore, that either you have the weevil and imperfectly developed vegetation (as this year in Texas), or you have the wet weather (as east of the Mississippi) and you feed the weevil. *A short crop is the result in any case.* It is not so serious a question that we are faced with a short crop this year, were we sure that future years would see larger crops, but the outlook for the near future is indeed very dismal in spite of the most energetic efforts on the Department of Agriculture to find the real remedy against the weevil. (*See special article p. 158.*)

The ARMY-WORM is a green caterpillar about one inch long which comes from South America, in the butterfly stage, annually, to the U.S. cotton belt. Generally it does little damage, as it eats principally the leaves. At the end of the season this does not much matter, but when the army-worm arrives early, as it did this year, the result is that the leaves are eaten and as they serve as lungs to the plant, the development of the fruiting bolls is seriously impeded. As the worm came early this year, and as the crop was late, the army-worm managed to hatch out a second brood which did additional damage, and in some places a third brood was hatched.

The COTTON-FLEA has been noticed for the last three years. It is generally found in the cup of the flower; the flea itself does no direct damage, but according to the latest findings of the Department of Agriculture, it carries with it some mycological disease in consequence of which the young squares become mildewed and fall to the ground, or as Dr. Hunter expressed it, "the young squares are blasted."

The boll-weevil in particular has disheartened the negro labourer ; as in most cases he works on the share system, his income is reduced through the small crop. He is enticed by the high wages of different industries in the North and Centre and suddenly leaves his cotton fields. The result is, of course, that the abandoned acreage will be very large

for it is impossible to find the necessary labour to attend to so many fields left by the decamping negro. Georgia is the State where the negro has left in very large numbers. Mississippi is said to have lost 100,000 negroes this year, and all the Gulf States are affected in the same way. No doubt the negro would like to return in many cases, but he has no money to do so and the task of organizing the return of the negro to the cotton field is very difficult indeed. The limitation of immigrants is the real cause of the migration of the negro as the American industries have not a sufficient influx of European immigrants to keep pace with the development that is taking place in consequence of the higher purchasing power of the mass of the people, partly due to the beneficial effects of Prohibition.

Throughout our journey we were faced with the fact that the cotton States east of the Mississippi are no more able to supply cotton on what might be called "an economic basis" to enable the large manufacturing centres like Lancashire to supply the normal quantities of cotton goods to the agricultural populations of India and China, who are our best customers. Their agricultural produce is being sold at or near pre-war prices, whilst American cotton is above 200 per cent. of the pre-war rate. The result must be a curtailment of at least 50 per cent. of the purchases of cotton goods and the worst of it is that we cannot see any prospects of obtaining American cotton at a cheap rate for years to come; the factors which we have enumerated are patent to everyone who studies the matter. America has not the least chance of competing with our Colonies or with countries like Brazil in the raising of cotton. Take alone the cost of fertilizing the ground and dusting the plants at nine or ten dollars per acre—in any of these countries that would pay the cost of cultivating cotton and probably cover the ginning and in some cases the transport. The cost of picking in America works out to almost 2d. per lb. We certainly know places in Africa or in Brazil where cotton is produced by the farmers at this very time at about 4d. per lb. lint. It seems to us that from the research work already done, we know the places where cotton can be grown and the fact that a field has produced for several years a fair cotton crop is to us of much more value than any amount of scientific charts of soil analyses, etc., which can only be obtained after many years of study. The cotton industry of the world cannot wait any longer—we must have cotton from somewhere and it appears to us that we have sufficient data available which would justify the cotton industry taking an active part in the promotion of cotton growing companies in several parts of the world, provided the Governments of such countries will give an assurance of adequate labour being available and reasonable transport provided, but unless the cotton industry gives the incentive, you cannot be astonished if the financial circles hold aloof. This does not apply solely to England, but also to all cotton using countries and some action from this Federation in this direction would undoubtedly lead to some practical work. We, in Lancashire, are certainly tired of *talking* cotton growing; we realize that we must set to work on producing the actual cotton for, be assured, America will not be able to supply the rest of the world with anything like the amount of cotton as in the past. We would not be at all surprised if nine and eight million bales must be looked upon as a future normal crop for America. Last year a super-human effort was applied in the U.S.A. and what distressing results have they to show? And remember that the United States mills are now

using 6½ million bales of their own cotton with every prospect of increasing that quantity.

If you think that the work of the mission was a success, you may probably decide to send some other members on the same errand on some future occasion. Therefore, we take the liberty of making a few suggestions which might lead to an improved service of this kind :

- (1) Time of starting from Europe—early in July.
- (2) The mission should not consist of more than six or, at the most, seven members. Two should travel by car through North Carolina, South Carolina and Georgia ; two should tour through Mississippi, Tennessee, Alabama and Louisiana ; and the rest of the party should travel through Texas, Arkansas and Oklahoma. A larger number on any of these tours would not lead to better results—on the contrary.
- (3) After four weeks of touring, the mission should meet at Memphis, this city being the most conveniently situated ; after consultation there, they should cable their first report and the members of the mission should then return, travelling practically over the same ground and comparing their first impressions with the second.
- (4) After a further three weeks of travel in their allotted States, they should unite again at Memphis and cable their second report.
- (5) One man should be left in the cotton belt until the beginning of November, with headquarters at Memphis, whence he could easily reach any place where special developments are reported.
- (6) The expense of such a mission might be too heavy for the resources of the International Federation, as it would cost about £3,000 : we recognize that such a figure is a mere bagatelle if one considers the saving which might result to the industry, but as it would mean an alteration in the annual levy, it would be difficult to introduce such a scheme when trade is unremunerative as at present. We feel, however, that a number of firms in the Federation would be ready to subscribe the necessary funds, but in that case the information obtained could only be cabled to the subscribing members. The latter procedure has the advantage that the information would be kept strictly private, whilst when one sends out circulars to some 4,000 firms it is next to impossible to prevent the particulars from getting into the Press.

We feel convinced that the scheme, as outlined, would work satisfactorily and I would suggest that the matter form one of the subjects for discussion at the forthcoming Congress, which I suppose will be held in June. As the mission would have to leave in the early part of July, no time would have to be lost in organizing it at the Congress.

The qualifications which are wanted for the individual members of such a mission are not so much experience in judging cotton fields, etc., but a shrewd intelligence in weighing up evidence which would be placed before the investigators ; a sound constitution is also a necessity, for the journeys are very exhausting.

We set out on our mission realizing the greatness of our task, it was undoubtedly a very difficult one under the most trying climatic conditions. We have done our utmost, in the time at our disposal, to ascertain the true position, and trust that our efforts have met with the approval of those whose interests we were sent out to represent.

A general discussion ensued in which the members expressed their satisfaction with the result of the mission's work and it was decided that the next Congress should have an opportunity of stating whether the International Federation should send every year such a mission to the U.S. cotton belt, or not.

The following resolution was unanimously adopted :

"That the Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations desire to place on permanent record their sincere appreciation of the invaluable services rendered to the World's Cotton Industry by Messrs. ARTHUR FOSTER and ARNO S. PEARSE in connection with the Cotton Crop Reporting Mission which visited the U.S.A. cotton belt in July-August. 1923, and

"That as a small token of the Committee's appreciation a gold cigarette case, suitably inscribed, be presented to each of these gentlemen at an official banquet."

## THE WORLD'S COTTON SUPPLY & CONSUMPTION.

The Secretary submitted a statement which he had prepared, showing the possibilities of cotton growing in the various countries and the consumption of the world. From this it was evident that the cotton mills of the world would this season have to reduce their consumption in accordance with the shortage of supply mainly on account of the small American cotton crop. It was the opinion of the Committee that the necessary preliminary work of research had been done in many places and that it was now time to undertake the real work of producing the cotton. The Committee expressed its concern at the seriousness of the position and unanimously adopted the following resolution :

"The Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations realizing more than ever the imperative need for an immediate increase in the supply of raw cotton, urges upon all Governments whose lands have been found capable of growing cotton, to stimulate the development of cotton cultivation on a commercial scale."

"The International Federation desire to avail themselves of the presence in this country of the Dominion Premiers in order to ascertain what prospects their countries afford for the production of cotton and what facilities for such purposes the various Governments are likely to afford. To this end it is resolved that the Premiers be asked to receive a deputation from this organization."

It was decided that such a deputation should consist of Messrs. F. Holroyd, F. A. Hargreaves, Arthur Foster, Arno S. Pearse, and any other member who could conveniently attend.\*

\* The reply received from the British Board of Trade in response to this resolution reads :

SIR,

*20th October, 1923.*

With reference to your letter of the 16th October to the Department of Overseas Trade, transmitting copies of resolutions adopted at a meeting of the Committee of your Federation on the 12th October, I am directed by the Board of Trade to say that, in view of the heavy programme of work before the Dominion representatives in connection with the Imperial and the Imperial Economic Conferences, and the many other calls upon their time, it is feared

The Committee also reaffirmed its opinion that Brazil was the country which offered the greatest advantages for the speedy relief of the cotton supply position and with a view to facilitating the establishment of a Cotton Trust or some similar Corporation for the purpose of growing, ginning and merchanting cotton in Brazil in various States, the Secretary was instructed to proceed, as early as convenient, to that country. The main portion of the work is to consist in ascertaining from the Federal and the various State Governments, the terms which they are prepared to grant to a Company undertaking this work and to obtain suitable options on land and ginning factories. This information is to be collected and submitted to the Committee on the Secretary's return from Brazil.

It is clearly understood that the International Federation as such cannot undertake the flotation of such company, but it was considered essential that the necessary information for enabling this to be done by some other body must be obtained by someone and as the growing of more cotton is of a general benefit to the whole industry it was decided that the expenses of the Secretary's journey to Brazil should be defrayed from the funds of the International Federation.

## TWELFTH INTERNATIONAL COTTON CONGRESS.

The President read a letter from Dr. Zucker pointing out that under present conditions it would be difficult for Czechoslovakia to have the Congress next year, and submitted to the Congress an invitation from the Austrian Association, inviting the Committee to hold the Congress in 1924 at Vienna. This invitation was unanimously accepted. As regards the time of holding the Congress, the desirability of holding it on June 12, 13 and 14 was pointed out, but it was understood that the fixing of the time must rest entirely with the Austrian Association.

The following subjects were adopted for the Congress agenda :

- (1) Cotton growing in Brazil.
- (2) Cotton growing in other parts of the world.
- (3) Effect of the 48-hour week on the Cotton Industry (particulars to be obtained from each affiliated country by means of a questionnaire).

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that no opportunity will arise for them to receive a deputation from your Federation on the subject of these resolutions.

I am to explain, however, that the importance of the considerations urged in your letter are fully appreciated. The question of the development of cotton cultivation within the Empire has already been brought before the notice of the Conference and of the various individual Governments interested, and a memorandum by the Director of the Empire Cotton Growing Corporation setting forth the position in regard to the world's cotton supplies and reviewing the potentialities of production within the Empire will, it is hoped, be laid before the Conference at an early date. The Federation will, no doubt, be interested to learn that arrangements have been made for a deputation of the Corporation to be received by General Smuts in order that a statement of the possibilities as regards South Africa may be laid before him; while as regards India, a special Cotton Committee has been set up whose functions are of a somewhat similar character to those of the Empire Cotton Growing Corporation, and the Cotton Cess Act has been passed to provide funds for the purpose.

I am, Sir

Your obedient servant,  
S. J. CHAPMAN.

- (4) Courts of Arbitration (adoption of new set of Rules).
- (5) Damp in Raw Cotton.
- (6) American Cotton Crop Mission (discussion of the work of last season's mission and decision to be arrived at as to whether this work is to be an annual undertaking of the International Federation or not).
- (7) Modern Drafting Systems in cotton spinning mills.
- (8) Labour Saving Appliances in cotton mills (spinning and weaving).
- (9) Any other subject to be submitted and decided upon by the President and Vice-President.

Invitations are to be sent to the Department of Agriculture, Washington, to the United States Cotton Farmers' Co-operative Associations and to the Raw Cotton Joint Committee of the International Federation (it is understood that the delegates attend the Congress at their own expense). *The provisional programme is printed on the following pages.*

### INTERNATIONAL COTTON BULLETIN.

General satisfaction was expressed with this publication. The President urged the affiliated Associations through the members present to keep the Secretary posted up with any events of importance which are taking place in their countries and might interest the affiliated Associations, so that such items could be inserted in the BULLETIN.



# Provisional Programme of the Twelfth International Cotton Congress, to be held at Vienna, June 12, 13, 14, 1924.

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## FIRST DAY'S PROCEEDINGS.

THURSDAY, 12TH JUNE, 1924 :

Chairman of the Morning Session, Mr. ARTHUR KUFFLER (Austria), President of the Congress.

9-30 a.m. ADDRESS by the President of the Congress, Mr. ARTHUR KUFFLER.

ADDRESS by Mr. JOHN SYZ, President of the International Cotton Federation on the activities of the organization since the Stockholm Congress, 1922.

CHANGE OF RULES 19 AND 13 OF THE STATUTES, as proposed by the Committee.

Rule 19 reads at present :

“ EXPENSES OF MEMBERS OF THE COMMITTEE.

“ The Members of the Committee of Management, when attending meetings of the Committee, shall be allowed first-class fares and 40 francs per day for out-of-pocket expenses.”

It is proposed that this rule be modified as follows :

“ The Members of the Committee of Management when attending meetings of the Committee are not entitled to payment of travelling or out-of-pocket expenses from the funds of the International Federation. Such expenses are to be borne by the Associations they represent or by the Members of the Committee themselves. In case where the Committee appoints a member to undertake special work which necessitates a journey, his out-of-pocket expenses will be defrayed from the funds of the International Federation.”

This change necessitates the elimination in Rule 13 of the words : “ *but in the latter case his expenses will not be paid by the International Federation,* ” which would then read :

“ Rule 13.—Each country shall have the right to appoint a substitute to attend the meetings of the Committee in the event of its representative being unable to attend. This substitute, in order to become conversant with the work of the Committee, may accompany the duly appointed representative to any meetings of the Committee, if the Associations in his country so desire. Such substitute has no power to vote, nor is it expected that he will take part in discussions at the meetings.”

FINANCIAL STATEMENT. COMTE JEAN DE HEMPTINNE  
(Belgium).

INTERNATIONAL COURTS OF ARBITRATION. MR. JOHN TAYLOR, solicitor of the International Federation, on behalf of the Special Arbitration Sub-Committee.

AMERICAN COTTON CROP REPORTING MISSION.

*(Review of the 1923 journey and decision to be arrived at whether this work has to be taken up every year.)*

#### AFTERNOON SESSION.

2-45 p.m. Chairman : Dr. ARNST ZUCKER (Czecho-Slovakia).

EFFECT OF 48-HOUR WEEK ON THE COTTON INDUSTRY.

MODERN DRAFTING SYSTEMS IN COTTON SPINNING MILLS.

LABOUR SAVING APPLIANCES IN COTTON MILLS.

#### SECOND DAY'S PROCEEDINGS.

FRIDAY, 13TH JUNE, 1924 :

Chairman : Mr. FREDERICK HOLROYD (England).

9-30 a.m. Minutes of the previous day's sittings.

COTTON GROWING IN BRAZIL.

COTTON GROWING IN THE COLONIES AND DEPENDENCIES OF THE AFFILIATED NATIONS.

#### AFTERNOON SESSION.

2-45 p.m. Chairman : Mr. G. MYLIUS (Italy).

DAMP IN RAW COTTON.

ADDRESS BY THE REPRESENTATIVES OF THE AMERICAN COTTON GROWERS' CO-OPERATIVE MOVEMENT.

AMERICAN COTTON CONDITIONING REPORTS.

#### THIRD DAY'S PROCEEDINGS.

SATURDAY, 14TH JUNE, 1924 :

Chairman : Mr. J. H. HERM. BÜHLER (Switzerland).

10 a.m. Minutes of the previous day's sittings.

Resolutions on subjects dealt with at the Congress.

Levy for 1925 and 1926.

Place of next Congress.

Votes of thanks.

## The Boll-Weevil Problem in the U.S.A.

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### Report of the Cotton Crop Reporting Mission of the International Cotton Federation.

**O**N our tour through the cotton belt we visited Tallulah, La., for the purpose of discussing with Dr. B. R. Coad, and his assistants of the Delta Laboratory of the U.S. Bureau of Entomology, the boll-weevil problem and to inspect the various experiments that were being carried out. Let us state at the outset that Dr. Coad and his staff impressed us very favourably; there is an atmosphere of energy, interest and zeal in the whole of this important department and Dr. Coad is undoubtedly the right man in this place where knowledge and organizing power are of so much value.

The following pages are the outcome of our talks with the staff at Tallulah, with other officials, farmers and from personal observation in the fields, as well as from the study of the many bulletins which have been issued on this all-absorbing topic. The photographs which we show have been handed to us from the unique collection that exists at Tallulah and are reproduced by courtesy of Dr. B. R. Coad.

The boll-weevil pest has made its result felt to a much larger number of people than the "phylloxera" in the vine-growing countries, or any other insect, and there has not been an insect on whose destruction so much energy and thought has been expended as on the boll-weevil. A real remedy for this pest that has already very largely contributed towards making cotton cultivation in the U.S.A. two and three times as expensive as it is in Africa or South America, does not exist, indeed if no better solution to the problem than what is known so far is found, it is very probable that within very few years the size of the American cotton crop will hardly suffice for the requirements of U.S.A. mills.

We have shown in our report sent from the States and in the articles on our journey published in this and the previous issues of the INTERNATIONAL COTTON BULLETIN how the boll-weevil is responsible for the undoubted fact that the States east of the Mississippi are no more in a position to produce cotton on what might be called an economic basis which would enable the world to consume the normal quantities of cotton goods; in other words, the boll-weevil is responsible for the existing difference in the ratio of the price of cotton in proportion to the present prices of other agricultural products in U.S.A. and the remainder of the world and it is lamentable indeed that in spite of diligent and energetic research there is no prospect so far that the U.S.A. will be able to grow anything like the quantities of cotton which the world has expected to receive from her this season and in the immediate future, due to over-sanguine statements of thousands of Americans during the past decade by whom the world has been mislead as to the potentialities of the American cotton belt.

In the following we are describing in detail the origin, spread, distribution, damage, life, hibernation of the boll-weevil, the natural

*INTERNATIONAL COTTON BULLETIN*

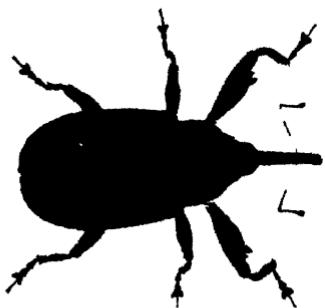


Fig. 1.—Enlarged photograph of Boll-Weevil.



Fig. 2.—Boll-Weevil, natural size, as larva or grub, pupa and fully developed Weevil.



Fig. 3.—The Boll-Weevil, natural size, puncturing a boll.

INTERNATIONAL COTTON BULLETIN

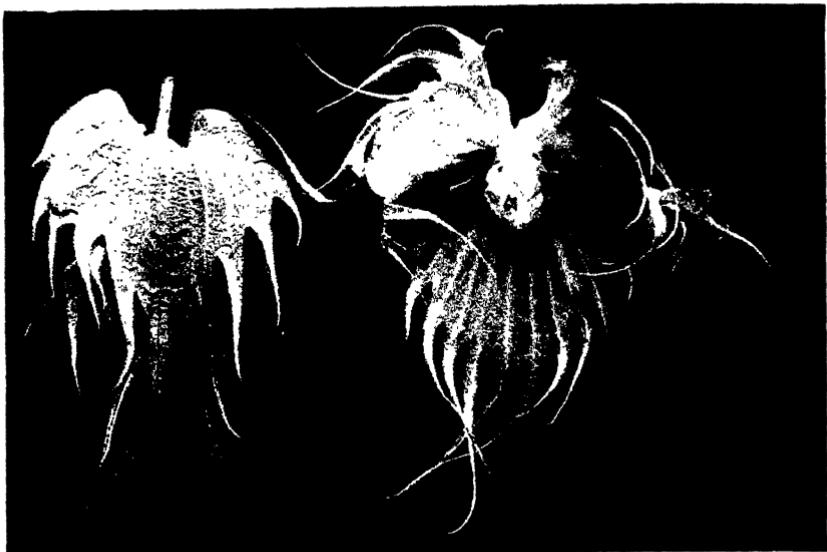


Fig. 4.—Weevil Injury to Cotton Square.

*The square to the right has been punctured and shows typical "flaring" of bracts, while the one to the left is uninjured. (Natural size.)*



Fig. 5.—Weevil Injury to Cotton Boll.

*The Boll to the left has been punctured and the one to the right is uninjured. (Natural Size)*

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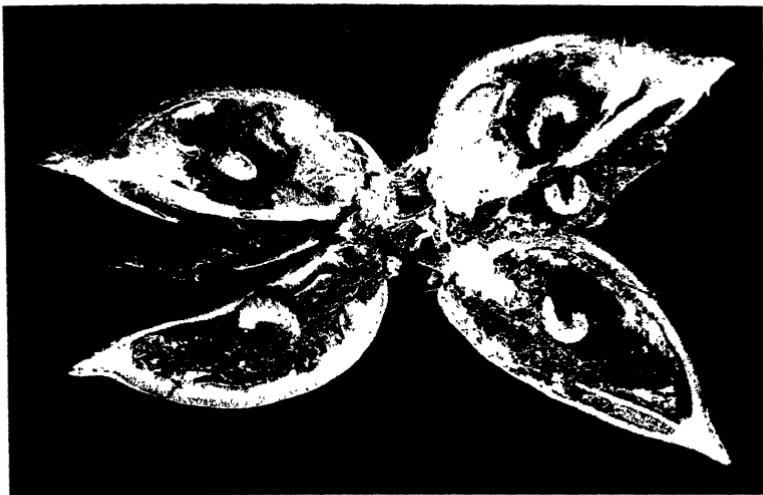


Fig. 6.— Cotton Boll in section, showing the grubs of Weevil in the various compartments.



Fig. 7.—The Army Worm, chrysalis and damage done to the leaves.

INTERNATIONAL COTTON BULLETIN

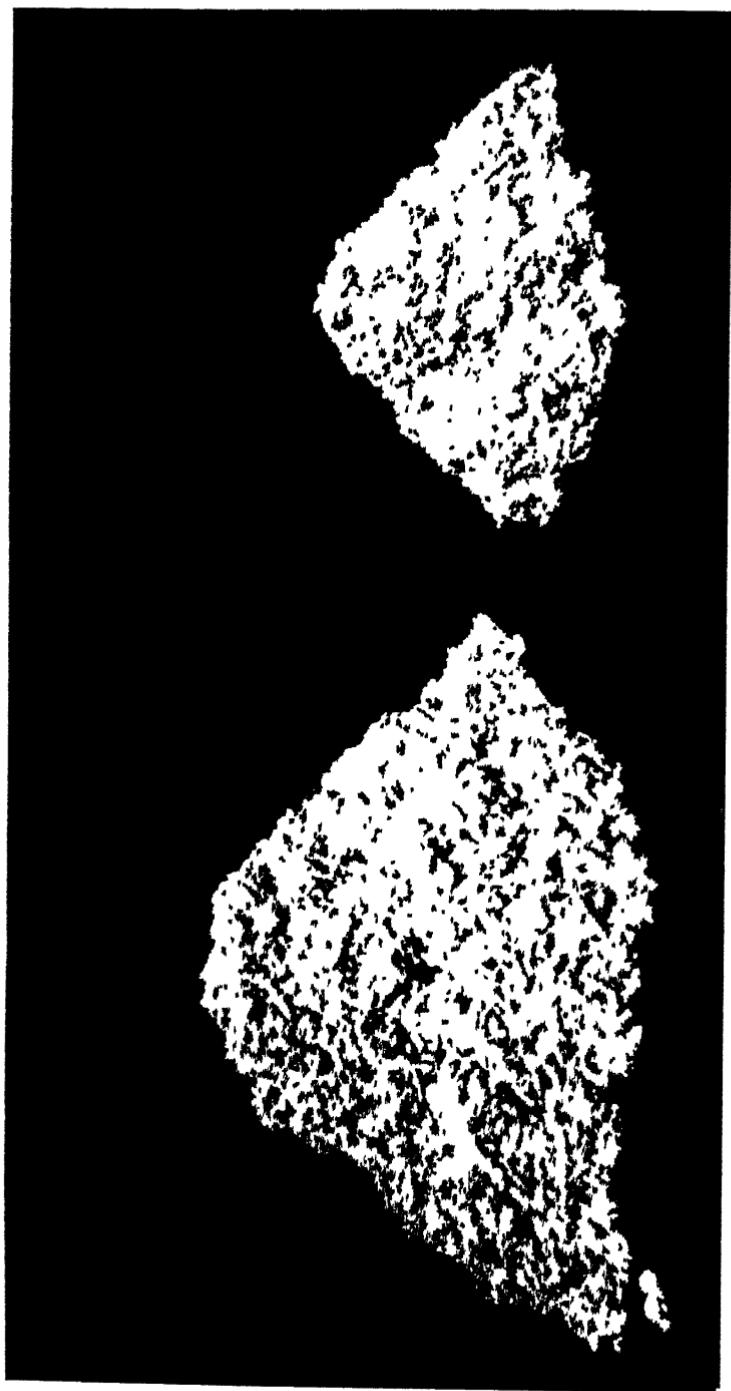


Fig. 8.—Effect of "Calcium arsenate."  
*The small heap of cotton is from the same number of plants as the large heap; same soil conditions, the only difference in treatment was that the plants which yielded the larger heap were regularly dusted with "Calcium arsenate," whilst the other plants yielding the smaller heap were not dusted.*

enemies and the present known means of control, etc. Though these details may be of little direct avail to the cotton spinner and manufacturer, yet a perusal of these pages will more than ever force the conviction on the reader that we are faced with a pest that is very likely to cause the cotton industry of the world to run on short time for years to come, i.e., until new fields in other countries have been developed on a proper commercial scale.

The study of the following pages compiled to some extent from extracts from authoritative U.S.A. Government Bulletins shows further the complicated nature of the problem, the almost futile hope of controlling the pest sufficiently by artificial means and the high cost at which cotton produced under boll-weevil conditions comes in the market. The cost of the necessary fertilizers and of calcium arsenate has been estimated as being somewhere between nine and ten dollars per acre ; let us bear in mind that in many other parts of the world the entire cost of cotton cultivation is less than this.

#### ORIGIN, SPREAD AND DISTRIBUTION

The Cotton Boll-Weevil (*Anthonomus grandis*) originated in Mexico or Central America and previous to 1892 had infested the Mexican fields, indeed it was responsible probably for the abandonment in part of that country of the cotton crop. About 1892 the boll-weevil crossed the Rio Grande, near Brownsville, Texas ; by 1894 it had spread to half a dozen counties in Texas and at that time attention was drawn to the enormous capacity of the damage done by the pest, but previous to that date the insect had not attracted much attention. Every year since, the range of progress of this pest has been at the rate of from 40 to 160 miles, though occasionally winter conditions caused a decrease in the infested areas. After the first ten years from its advent, the annual rate of spread of the weevil was 5,640 square miles ; from 1901 to 1911 this increased to 26,580 square miles, and in 1916 it reached 71,800 square miles. Of course, the figures given do not refer to the area in cotton alone. At the end of 1921, 600,000 square miles of territory had been infested by the boll-weevil, leaving only about 105,000 square miles of cotton-producing territory uninfested. The infested area in 1922 represented 94.6 per cent. of the cotton crop of the cotton belt of the U.S.A. Since then it has progressed to North Carolina and practically the only territory remaining uninfested is the zone along the western margins of the cotton belt. Some of this territory has been invaded in the past and the weevils have been driven back by adverse weather conditions. Whether the weevil will ever become seriously injurious in this territory is problematical, but it has shown marked ability to adapt itself to unfavourable conditions. Just how far this adaptation will extend it is impossible to predict.

The progress of the weevil invasion has caused one erroneous impression. When the weevil invades a new district complaint is made of its serious injury to the cotton crop during the first two or three years, and then little more is heard of it. This naturally leaves the impression that the weevil is seriously injurious in a new territory for only a few years and then passes onward. This impression, however, is not substantiated by facts. It is true that when weevils first invade a community there is nearly always more or less panic and a decided tendency to blame the weevil invasion for all short crops of cotton regardless of the real causes. Furthermore, the successful production of cotton in the

presence of weevils requires somewhat different methods from those practised before the advent of the weevil, and it usually takes the farmers two or three years to learn and adopt these methods. After a few years the farmers become accustomed to the weevil injury, learn to distinguish between loss due to the weevil and that attributable to other causes, and are able to reduce weevil injury somewhat by proper farming practices. The first fear has been overcome, and comparatively little is said on the subject. Farmers in the eastern portion of the cotton belt even express the idea that the weevil is no longer doing any damage in Texas. Yet the cotton-growing season of 1921 has shown a total of more weevil damage in the State of Texas than that of any previous year. Once established in a community weevil injury will continue, and when weather conditions favourable to weevil survival and multiplication are experienced serious injury must be expected. Since one of the most favourable conditions for weevils is excessive summer rainfall, the regions with the heaviest precipitation during the cotton-growing months will suffer the greatest damage.

A form of the boll-weevil is found in the mountains of Arizona feeding upon a wild plant related to cotton. This variety has been under observation for a number of years, and finally was noted in 1920 attacking cultivated cotton north of Tucson, Ariz., between that city and Santa Catalina Mountains. The State of Arizona is attempting to eradicate this infestation by a non-cotton zone in the infested district.

The boll-weevil is known throughout the larger portion of Mexico and southward to Guatemala and Costa Rica, but not in Brazil. It is known to occur also in the eastern half of Cuba.

#### DAMAGE

The losses caused by the boll-weevil are both direct and indirect, and extend practically throughout the entire financial and economic structure of the cotton belt. It is impossible to estimate the losses due to depreciated land values, closing down of cotton gins and oil mills, and other indirect results of the weevil invasion. All estimates have been made entirely on the basis of the direct loss in non-production of cotton lint and seed. The Bureau of Crop Estimates of the United States Department of Agriculture in the fall of 1920 estimated an average annual loss for the last four years of about \$300,000,000. Other estimates have differed somewhat, but certainly the annual direct loss is now well in excess of \$200,000,000.

The damage in individual fields is influenced by many factors and varies widely, ranging from slight injury to complete destruction of the cotton crop. A fair idea of the possibilities of loss is afforded by the gains which have been secured in recent poisoning experiments where weevil injury has been eliminated. Gains of five, six, or even seven hundred pounds of seed cotton per acre due to poisoning are not unusual, and in exceptional instances gains have exceeded one thousand pounds.

The Bureau of Entomology has conducted experiments during several seasons on a total of more than 50,000 acres of cotton located on well-known plantations throughout the infested territory. The special requirements in different regions have received particular attention.

Aside from the work relating directly to the boll-weevil which has been conducted by the Bureau of Entomology, the Bureau of Plant

Industry has carried on investigations dealing with the breeding of cottons to obtain earliness and productiveness. The farm-demonstration service has carried the results of this work directly to the farmers throughout the South.

#### DESCRIPTION AND LIFE HISTORY OF THE BOLL-WEEVIL

The adult boll-weevil is about one-fourth of an inch long, varying from one-eighth to one-third of an inch, with a breadth about one-third of the length. This measurement includes the snout, which is approximately half the length of the body. Variation in size is due to the amount of food the insect has obtained in the larva stage. Individuals from bolls are therefore nearly always larger than those from squares. The colour (greyish or brownish) depends upon the time that may have elapsed after transformation to the adult stage. The recently emerged individuals are light yellowish in colour, but this changes to a grey or nearly black shade in a few weeks' time (Figs. 1 and 2).

Hundreds of species of weevils in U.S.A. may be easily mistaken for the boll-weevil. Many erroneous reports about the occurrence of weevils far outside the infested area have been due to this similarity. In the field the most conspicuous indication of the presence of the boll-weevil is the flaring (Figs. 3 and 4) and falling of numbers of squares. Unfavourable climatic conditions and careless cultivation, however, frequently cause great shedding, which is often mistaken for weevil damage. If excessive shedding be noted and the squares upon being cut open show a white, curved grub (Fig. 6) that has fed upon the contents, there is little doubt that the boll-weevil is the insect causing the damage.

The boll-weevil passes the winter as an adult or beetle. In the spring and throughout the fruiting season of cotton the eggs are deposited by the female weevils in cavities formed by eating into the fruit of the plant (see Fig. 3). An egg hatches under normal conditions in about three days, and the grub immediately begins to feed. In from seven to twelve days the larva or grub (Fig. 2 right) passes into its pupa stage (Fig. 2 centre), corresponding to the cocoon of butterflies and moths. This stage lasts from three to five days. Then the adult issues (Fig. 2 left), and in about five days begins the production of another generation. Climatic conditions cause considerable variation in the duration of the stages, but on an average it requires from two to three weeks for the weevil to develop from the egg to the adult. Males and females are produced in about equal numbers. The males feed upon the squares and bolls without moving until the food begins to deteriorate. The females refrain, throughout most of the season, from depositing in squares visited by other females, but late in the fall, when all of the fruit has become infested, several eggs may be placed in a single square or boll. As many as 15 larvæ have been found in a boll. The squares are greatly preferred as food and as places for depositing eggs. As long as a large supply of squares is present the bolls are not damaged to any serious extent. The bolls, therefore, have a fair chance to develop as long as squares are being formed.

The cotton boll-weevil, so far as known, breeds in no plants other than cotton and the wild cotton of Arizona. At the present time, at least, the insect is restricted to the cotton plant as a means of development.

In laboratory experiments a weevil developed in the bud of a wild plant related to cotton. Under natural conditions it has not been found

developing in that plant, but the experiments may indicate a tendency for the insect to acquire a new food plant. Adult boll-weevils frequently have been found in okra blooms, but repeated observations and experiments have failed to show that the weevil places its eggs in the pods or can develop in them. When confined in bottles, the adult weevil will feed on various substances, such as apples or bananas, but this is only under the stress of starvation.

The chief activity of the boll-weevil is from nine o'clock in the morning to five in the afternoon. It has been found in experiments performed in Louisiana that during this period of the day 65 per cent. of the eggs are deposited. Eleven per cent. of the eggs were deposited early in the morning—that is, from five o'clock to nine. There is some activity at night. Six per cent. of the eggs are deposited between eight o'clock at night and five o'clock in the morning.

Unlike some related insects, the boll-weevil is not attracted to light. The fact that somewhat similar species do come to lights in great numbers at times has frequently caused the belief that the pest could be controlled by the use of trap lights.

An interesting habit of the boll-weevil is to feign death. When disturbed, the insects usually contract their limbs and drop to the ground. This habit is not equally strong in all individuals.

The age to which weevils live varies according to conditions. During the winter the longevity is much greater than in the summer. During the summer season the majority of weevils do not live longer than 50 days. During the cooler part of the year many of them live as long as six months. The longest-lived weevil on record lived from December 10 to the following October, a period of about 11 months. Undoubtedly such prolonged life is exceptional in the usual form of the weevil. The Arizona weevil, however, has been known to survive for more than a year.

#### HIBERNATION

As has been pointed out, the boll-weevil passes the winter in the adult stage. At the time in the fall when frosts occur immature stages may still be found in the squares or bolls. If the food supply is sufficient, many of these immature stages continue their development at a very slow rate and finally emerge as adults. Thus there may be a somewhat continuous production of adults during the winter. Ordinarily, however, this is not the case, since the frosts that destroy the cotton generally kill practically all of the immature stages of the weevil.

With the advent of cool weather in the fall the adult boll-weevils in cotton fields begin to seek protection against the winter. They fly from the fields in every direction, although their movements are governed partially by the prevailing winds. They may fly into hedges, woods, cornfields, haystacks, farm buildings, or other places. Specimens have been found in such situations, and also in considerable numbers in Spanish moss growing some distance above the ground on trees. A number of weevils also obtain hibernating quarters without leaving the cotton fields. These may crawl into cracks in the ground, under grass, weeds and other trash, and into the burrs from which the cotton has been picked. In some cases several thousand weevils per acre have been found hibernating in such situations. Here, however, the mortality is greater than where the protection is better. In fact, hibernation in the fields is not of great importance except in the more southern localities.

That the majority of weevils which hibernate successfully do not pass the winter in the cotton fields has been shown by many experimental observations and is demonstrated every year in the immediate vicinity of woods and in other places where conditions for protection are favourable.

During the winter the weevils take no food and remain practically dormant. On specially warm days they may move about to a certain extent. During the very mild winter of 1906-7 hibernating weevils were found moving about more or less throughout the period from November to March.

The number of weevils that live through the winter has been determined very accurately for different conditions. It varies with the temperature and with the region. Heavily timbered regions, especially where Spanish moss occurs, show the smallest winter mortality.

Such experiments are carried on in specially constructed cages in which different conditions, similar to those existing in the open are artificially created. The conditions range from the most favourable to the least favourable, i.e., from an abundance of protection to practically none. From a large number of these experiments it was shown that in Louisiana, out of 25,000 weevils 2·82 per cent. survived the winter of 1905-6; in Texas during the abnormally warm winter of 1906-7 out of 75,000 weevils 11·5 per cent. survived. The average survival in experiments undertaken in Texas and Louisiana from 1906 to 1911 was 6 per cent. From 1914 to 1920 at Tallulah experiments were made annually with 20,000 to 30,000 weevils and the survival varied from 0·3 per cent. to 5·9 per cent.

Emergence from hibernation depends primarily upon temperature and rainfall in the spring, although some minor factors are concerned. It has been known to extend from the middle of March to the 28th of June, and in even more extreme cases from the middle of February to about the first of July. There is usually a comparatively short period during which the emergence is most rapid but this may be broken up into several such periods with intervals of slow emergence due to changes in weather conditions.

#### HOW NATURE ASSISTS IN DESTROYING THE BOLL-WEEVIL

Although the possible production of offspring in a single season by one pair of weevils has been estimated at 12,755,100, nature has provided several means of preventing such excessive multiplication. The most conspicuous of these are heat and insects that prey upon the weevil.

EFFECTS OF HEAT.—When infested squares fall to the ground they may become so heated that the larvæ are killed in a few minutes, as was the case this last season in Texas. The insect in the larva stage cannot leave the square, as it has no means of locomotion whatever. Where the infested squares are subjected to the unobstructed rays of the sun the mortality is very high. This explains the well-known fact that dry seasons are unfavourable to the weevil and indicates great difficulty in controlling the insects in regions where precipitation is heavy. Occasionally as many as 90 per cent. of the immature weevils in cotton fields inspected have been found to have been destroyed through this agency. The extent of destruction holds a close relation to the amount of shade. When there is no shade practically all of the larvæ and pupæ are killed outright.

**INSECT PARASITES.**—The second of the means provided by nature for the control of the weevil is a large number of insect enemies. Forty-five species which prey upon the boll-weevil are known. Of these, 23 are parasites, which by means of their special organs place eggs on the immature stages of the weevil within the square or boll. The young of the parasite develop by feeding upon the boll-weevils, which they ultimately kill. Thus parasites instead of boll-weevils emerge from the injured fruit. These enemies of the weevil have existed in U.S.A. for an indefinite time. Their natural habit has been to prey upon weevils more or less related to the boll-weevil which have been present in this country for many years. They never feed upon vegetation. Since the boll-weevil offered abundant and favourable opportunities for reproduction, while their original hosts were generally not very numerous, they have naturally turned their attention to the boll-weevil. The weevil mortality due to these parasites is exceedingly variable. In many cases no mortality from parasites is observed, while on the other hand fields showing from 50 to 75 per cent. of the weevils killed by parasites are by no means rare.

**OTHER INSECT ENEMIES.**—The boll-weevil is attacked by a number of insects which are not parasites in a strict sense but prey upon it as food. The most important of these predatory enemies are ants. Twelve species are known to attack the weevil. They are the minute brown ants and the yellowish ants that occur frequently in cotton fields and are observed running over the plants or on the ground. Their work is not against the adult weevils, but against the immature stages in the squares. Some species devote their attention principally to the squares that have fallen to the ground, while others habitually seek the insects within the squares that remain hanging on the plants. The larva of the weevil, incased in a thin covering, offers food that the ants are not inclined to overlook. They gnaw through the thin shell inclosing the weevil larva, and the latter is soon destroyed. In some cases more than half of the immature stages in fields have been destroyed by ants alone. To find 25 per cent. so destroyed is not a rare occurrence.

**VARIATION IN NATURAL CONTROL.**—Winter killing during hibernation and summer killing due to heat are by far the most important types of natural control. *If it were not for these agencies it would be impossible to raise cotton in the presence of the boll-weevil.* All control agencies, however, vary widely from field to field and season to season in their effect, and this explains the extreme variation in the amount of injury caused by the boll-weevil. A mild winter followed by a rainy, cloudy summer favours rapid multiplication of weevils and the damage to the cotton crop is correspondingly increased, while the reverse weather conditions may practically prevent damage to the crop.

#### DISSEMINATION

The boll-weevil moves from place to place by flight. Although it is a weak flyer compared with many insects, it has been known to cover distance of more than 40 miles in a very short time. Its flight cannot be prolonged, but successive short flights, especially in connection with favourable winds, often carry the insect considerable distances. This is the case, however, only during the so-called dispersion or migration period, which extends from about the middle of August to the end of

the season. During the rest of the year the weevil is little inclined to fly. There is always a movement from fields in all directions in search of hibernating quarters in the fall and a corresponding movement from such quarters to the cotton fields in the spring. When the insects reach cotton fields in the spring there is little further movement until the general dispersion begins. Ordinarily between the middle of August and the 1st of September the weevil seems to be seized with the instinct to migrate. It was thought at one time that this movement was forced by excessive reproduction and took place only when all squares and bolls, or the majority of them, became infested. Investigations have shown, however, that the dispersion takes place frequently when the fields are only slightly infested. In other words, the insect has a well-developed instinct for extending its range into new territory. It is this instinct that has caused the extension of the infested area in the United States year by year. The weevil is governed in flight by the wind. If there is no wind, or only a light one, a weevil is as likely to fly in one direction as in another.

The fact that the weevil moves about very little except at one season is of great benefit to the planter. The movement referred to is of little importance after a region has become infested, because it does not begin until after the time when a crop normally is made. The limited movement during the rest of the year makes it possible for any individual farmer to obtain the best results from his own efforts in fighting the pest. The danger that his efforts will be thwarted by the arrival of weevils from fields where no precautions have been taken is not important enough to warrant any farmer in deferring action on account of the indifference of his neighbours.

### METHODS OF CONTROL

Control of the boll-weevil is beset with many difficulties. The weevil's insidious methods of work in immature stages within the fruit of the cotton plant, the habit of the adult in seeking protection for the greater part of the time under the bracts of the squares (Fig. 4), its enormous power of reproduction and adaptability to new conditions, all place it in a class by itself. These difficulties are further increased by many peculiar requirements of the cotton crop itself and the fact that a successful method of control must naturally be one which is practicable under the average conditions of cotton culture.

In spite of these difficulties, however, certain means of control have been developed. These are the direct and the indirect methods, both of which are of vital importance. The importance of indirect methods is often more difficult for the farmer to appreciate than that of the direct; but, in reality, successful weevil control cannot be accomplished unless full advantage is taken of every possible method, and the campaign must be based upon a combination of the different methods rather than concentrating all efforts on direct control.

The farmer is aided in his fight against the weevil by a number of important natural factors which tend to reduce the possible weevil damage. Some of the more important of these which must be taken into consideration in planning a fight on the weevil are as follows :

- (1) *The weevil is practically dependent on cotton for reproduction.*
- (2) *The mortality of the weevil during the winter is very high.*

(3) Hot, dry weather during the summer exercises a tremendous control upon the weevil stages, while moist, cloudy weather removes this control and greatly accelerates multiplication.

(4) The weevil is attacked by many different species of insect enemies.

(5) The emergence from hibernating quarters during the spring is slow and prolonged until well into the summer.

(6) Early in the season, on account of comparatively low temperatures, the development of the weevil is much slower than during the midsummer months.

(7) The cotton plant produces many more squares than it can carry to maturity as bolls. This surplus is shed by the plant throughout the season, under normal conditions about 60 per cent. of the fruit being shed.

(8) Up to a certain point weevil puncturing of fruit does not reduce the cotton crop, because large numbers of forms would be shed normally.

(9) The weevil has a decided tendency to seek moisture wherever it may be found on the surface of the plant.

#### DIRECT CONTROL BY POISONING WITH CALCIUM ARSENATE

In the years which have elapsed since the advent of the boll-weevil into the United States every conceivable means of direct control of the weevil has been tried repeatedly. Owing to the peculiarities of the weevil attack which have been mentioned, most of these attempts have been unsuccessful. Some methods were found which would control the weevil, but these were either impracticable or too expensive for use on a commercial scale. During comparatively recent years, however, a method of poisoning has been developed which has proved, to some extent, successful. This consists of treatment of the plants with powdered calcium arsenate by a specialized method.

It has long been known that poisoning the boll-weevil is possible to a certain extent, but on account of the peculiar habits of the insect it was difficult to develop methods for the application of the poison.

A profitable method, however, has now been developed by the Bureau of Entomology.

The first question which occurs to the cotton farmer contemplating poisoning is whether it will pay to do so. It will pay to poison :—

If the weevils are really injuring the crop seriously ; and

If the land is sufficiently fertile to yield at least one-half bale per acre with weevil injury eliminated ; and

If labour supply and the necessary funds are at all times available to insure that the poison applications will be made at the right time and in the right manner ; and

If the farmer is willing to spend the full amount necessary to provide an adequate supply of dusting machinery and poison.

The farmer should not poison if the cost of the calcium arsenate, the cost of the labour to apply it, and the depreciation on the dusting machines will total more per acre than the current value of 100 lbs. of seed cotton.

Hand guns should be figured as depreciating 100 per cent. in a season and the larger machines about 25 per cent.

The next extremely important question is that of the dusting machinery which should be used. Extensive experience has shown that it is impossible to get satisfactory results by using makeshift devices to apply the poison, and the only safe procedure is to provide an ample supply

of the specialized dusting machinery which is now on the market for the treatment of cotton for the control of the boll-weevil. Machines of various types, prices, and capacities are now being manufactured which meet the requirements and circumstances of almost all classes of growers. On pages 20 and 21 of the INTERNATIONAL COTTON BULLETIN No. 5 photographs showing the various machines in action were reproduced. The following is a brief description of the several types and their uses:

The hand gun is the smallest type of cotton-dusting machine, and, as the name implies, must be carried and operated by the labourer. These machines are generally quite unsatisfactory, owing to their necessarily frail construction and laboriousness of operation. The selling price ranges from \$12 to \$25 each. *They should be used only when no other machine is suitable.* Not more than eight acres should be allotted to one hand gun, and it has generally been found inadvisable to attempt the treatment of more than 25 acres of cotton in one organization with hand guns.

The one-mule machine is the smallest of the traction type of dusters. It is a one-wheel, one-mule machine which the operator handles as he would a walking cultivator or any other walking implement. The machine has two nozzles and will treat either two or three rows of cotton at a trip, thus covering from 15 to 20 acres of cotton in a night of operation. It should be allotted not more than 60 acres of cotton for treatment throughout a season. This machine is now selling at from \$100 to \$125.

The cart machine is a two-wheel, two-mule machine which straddles a row of cotton. It has three nozzles and will cover from 25 to 30 acres of cotton in a night of operation. It should be allotted not more than 100 acres of cotton for treatment through the season, and is the type most suitable for large farms. This machine is now selling at from \$250 to \$400.

In the early stages of the dusting work an engine power machine was tried and a few of these are still in use, but it has been found that they are generally too complicated for satisfactory operation except by expert labour. Still other types of machines to suit different conditions are in the process of development, but the present supply will meet almost any condition fairly well.

The following condensed rules have been prepared by the Department:

Only pure calcium arsenate in the form of a dry powder should be used, and this applied only in the dust form.

The powder should conform to the following specifications:

Not less than 40 per cent. total arsenic pentoxid.

Not more than 0.75 per cent. water-soluble arsenic pentoxid.

Density not less than 80 or more than 100 cu. in. per lb.

The farmer should ask the county agent to send a sample of the calcium arsenate to the Delta Laboratory, Tallulah, La., for free analysis to make sure that it is satisfactory.

Only dusting machinery specially constructed for cotton dusting should be used.

Poisoning should be undertaken only when the air is calm and the plants are moist. Practically this means making only night applications.

About five to seven lbs. of calcium arsenate per acre for each application should be used.

Poisoning should be started when the weevils have punctured from 10 to 15 per cent. of the squares.

The cotton must be kept thoroughly dusted until the weevils are under control. This usually means about three applications at the rate of one every four days, after this poisoning may cease until the weevils again become abundant.

If the weevils become abundant early enough to injure young bolls, one or two more applications should be made late in the season.

If a heavy rain occurs within 24 hours after dusting, the application must be repeated immediately.

*Poisoning merely controls the weevils sufficiently to permit a full crop of cotton and you can always find weevils in the successfully poisoned field.*

*The farmer should plant a small cotton acreage and do everything possible to increase the yield per acre, as it costs just as much to poison one-quarter bale per acre cotton as a bale per acre cotton.*

An occasional portion in a field should be left unpoisoned for comparison with the adjoining poisoned tract. This will show how much the yield has been increased by poisoning.

ARTHUR FOSTER. ARNO S. PEARSE.

(*To be continued in the next issue of the INTERNATIONAL COTTON BULLETIN.*)

There is a good deal of opposition being made to the advice given by the Government experts. We came across several, quite enlightened farmers, who would not use the calcium dusting method, as they maintained that the gain is not commensurate with the outlay. Others advocate mixing calcium with molasses, and the number of those who hold this view is very large. Then again there are those who advocate late planting, in short, the opinions of experts differ, and it is this divergence of opinion which delays action. The following plausible article extracted from the *Manufacturers' Record* shows the views of an advocate of late planting:

Are we going at things in the wrong way to wage a successful fight against the boll-weevil? "Yes," says J. Hoke Tigner, of the Atlanta Commercial Exchange, Atlanta, Ga., and some of the arguments he presents for his side of the case sound mighty convincing.

"Everywhere you turn," says Mr. Tigner, "you will find the farmers advised to plant cotton early—to use early-maturing varieties—to beat the boll-weevil to it. And the advice is wrong—all wrong. In the first place, you can't possibly beat the boll-weevil to it. He begins to emerge from hibernation about February 15 and continues to emerge until July 1. Statistics show that 75 per cent. of the weevils hibernating through the winter have emerged by June 1.

"What happens when you plant early-maturing cotton? You simply supply food for the weevil—that's all. As soon as the boll-weevil emerges from hibernation she lays her eggs—and dies. These eggs remain for from one to three days and change to grubs. The grubs stay in this form for seven days and turn into larvæ. The larval stage lasts another seven days, when the insect emerges as a full-grown boll-weevil.

"It takes but 24 days for the boll-weevil to go from the egg to the reproductive stage.

" As a result, no matter how early you plant your cotton you cannot beat the weevil to maturity. The first and second crop of weevils get into it in spite of everything you can do.

" The result is heavy weevil infestation—and the loss of the larger part of your crop.

" But that's not all you lose. If you plant early-maturing varieties, you will be compelled to use those having a shorter staple. Sections using early varieties in Georgia have cut the length of their staple nearly in half. What is the result? Instead of getting a premium for good staple over the market price, they are compelled to take reductions of from 1 to 2 cents per lb. from the price of standard middlings.

" A number of years ago, cotton grown within a radius of 100 miles of Atlanta always brought a premium over the market price because of the length and fine quality of its staple. Then early- and shorter-stapled-varieties began to come in. Now farmers in this section stand a loss on every lb. they sell instead of getting a premium.

" If you don't believe early planting hinders the fight on the boll-weevil rather than helps it, just review the cotton situation in Georgia this year.

" Farmers in South Georgia had a bit of clear weather early in the spring and took advantage of it to get their cotton in early. Where are they now? In the language of the cotton farmer, 'they isn't.' The weevil has eaten them out of a good cotton crop.

" On the other hand, farmers in Middle and North Georgia encountered rainy weather. It looked like they never would be able to get their cotton in. When they finally did get started the infestation of weevils was abnormally heavy.

" All of our so-called cotton experts said that they would never make a crop.

" But right now the weevil infestation in Middle and North Georgia is lighter than it has been in years, and cotton bids fair to make a good yield on that account. Why?

" Because the farmers who planted their cotton late got it in *too late for the emerging boll-weevils to find a home in it.* Seventy-five per cent. of the weevils wintering over emerged, found no cotton in which to lay their eggs, and died. It isn't the early infestation that counts—it's the second. If the first generation dies the second cannot do much damage.

" So, I say, the way to fight boll-weevil is not to plant cotton early, but to *plant it late*—as late as possible. Cotton takes 120 days to make a crop. It can be planted as late as June 1 in Middle Georgia and still make. And if it is planted as late as June 1, the boll-weevil, which has mainly emerged by June 15, will never get a chance at it.

" Calcium arsenate would work—if enough farmers could be induced to use it. *But they can't be.* The unit of a man, a mule, and 30 acres of land can never be increased to include a boll-weevil duster—at least not for years and years.

" Then, too, there is not enough calcium arsenate to go around—and it is not likely to be any time in the near future. And it is too high in price when our farmers do get hold of it.

" Late planting and uniform planting, controlled by law, is, I believe the only way to wage a successful war against the boll-weevil.

"If it could be made illegal to plant cotton in, say, South Georgia, before May 15, in Middle Georgia before June 1, and in North Georgia before June 10—if farmers could be compelled to hold back until those dates before they could plant—the weevil would be starved out of the State.

"There would be nothing new for them to learn, no new equipment for them to buy, no calcium arsenate for them to pay high prices for, no rules or regulations of any kind. All that the State would need to do would be to hold them back until the proper planting date—and let them go to it.

"The boll-weevil now consumes as much cotton as the cotton mills in the United States. He is not being controlled by poisoning. He is not being checked by any method of cultivation now in use. And if a little legislation will do the business—as I think it will—it will be the best piece of legislation enacted in Georgia, or in any Southern State.

"The law tells me that I must not shoot quail out of season, even on my own plantation. Hasn't it the same right to tell me I must not plant cotton out of season? I think it has. The law always has the right to protect a community against the wilful acts of the individual. And if it isn't a crime to plant cotton ahead of time and spread boll-weevils over the entire neighbourhood—I don't know the definition of the word.

"At any rate, I am convinced that late planting, and uniform planting, controlled by law, offers the only solution to the weevil problem, and gives the Southern farmer his only chance to raise a crop of cotton."

### **NEW BOLL-WEEVIL COMMITTEE.**

Towards the end of October a gathering took place at New Orleans of representatives of all sections of the U.S.A. cotton industry and allied interests at which a "nation-wide war" on the weevil was launched; a permanent organization to carry out the purpose of the convention was established, composed of: Dr. W. D. Hunter and Dr. B. R. Coad, representing the United States Department of Agriculture; Dr. W. B. Hind and Dr. D. C. Hall, representing the Southern departments of agriculture; C. H. Markham of the Illinois Central and W. R. Scott of the Southern Pacific, for the railroads; Dr. W. D. Haas, banking interests; B. R. Comer, of Alabama, for cotton manufacturers; W. D. Farris of Texas, J. W. Fox of Mississippi, David B. Coker of South Carolina, and R. D. Bowen of Texas, for the "dirt farmer"; H. M. Rankin, vice-president of the New Orleans Cotton Exchange, and Henry M. Royce, vice-president of the New York Exchange, for the cotton exchanges; Dr. Tate Butler of Memphis and the president of the Southern Newspapers Publishers' Association for the publishing interests.

Mr. J. C. Barry of Lafayette was elected secretary.

At the conclusion of the meeting, Col. H. G. Hester, veteran secretary of the New Orleans Cotton Exchange, predicted that the South would yet see a twenty-five million-bale crop of cotton.

Our remarks are: "God speed to the twenty-five million bales!"

## THE PEDIGREED SEED COMPANY, HARTSVILLE, S.C., U.S.A.

In the course of our journey through the Cotton Belt of the U.S.A. we visited the above-named establishment, which has gained considerable reputation in consequence of the splendid results obtained through the energy of Mr. David R. Coker, the President of the organization. The Company owns an important plantation in South Carolina, where some of the proved varieties are grown on an extensive scale, principally for seed purposes. The chief varieties which have been raised by the Company are:

*Delta type* (Webber cotton,  $1\frac{1}{4}$  in. to  $1\frac{3}{8}$  in.). Ginning out-turn, 31 per cent. to 33 per cent.

Yield with average farmer before boll-weevil, equals 250 lbs., though on Coker's own fields he gets 500 lbs. per acre.

*Webber 49*,  $1\frac{1}{4}$  in. to  $1\frac{5}{16}$  in.

as above.

*Lightning Express*,  $1\frac{3}{16}$  in. to  $1\frac{1}{4}$  in.

*Cleveland Big Boll*,  $\frac{5}{8}$  in. to  $1\frac{1}{16}$  in. Ginning out-turn, as much as 38 per cent. to 40 per cent.

Perhaps nothing will show better than the accompanying list of variety tests the excellent results obtained with Mr. Coker's seed, as compared with other varieties.

The trees which we saw had excellent shapes, bearing large fruiting bolls in the middle of July, whilst the cotton plants in the neighbourhood had, at that time, only very small bolls to show. Early fruiting must be aimed at in all boll-weevil-infested areas, as the safest and cheapest means for combating this insect.

The fields of the Pedigreed Seed Company are extremely well cultivated, and Mr. Coker's farm is acting as a great stimulus all round the district.

Unfortunately Mr. Coker was in California at the time of our visit; we were told that he was an advocate of long staple cotton and impressed upon his manager that during the last few years the world's demand was for 1 in. to  $1\frac{1}{8}$  in. cotton and as long as the world was impoverished there would be little chance of an early return of the demand for the usual quantities of long staple cotton, but as they have several types, notably Delta Webber,  $1\frac{5}{16}$  in. staple, which are nearly as productive as any of the short cottons, they find that even at the present low staple premiums the Delta type is paying careful growers in South Carolina better than short staples and they will continue to plant it at 10 to 20 per cent. premium. Mr. Coker considers that there is a heavy over-production of  $1\frac{9}{16}$  in. cottons in Egypt, South America and the American belt and he realizes that this production will have to be decreased.

For years Mr. Coker concentrated on work with Cleveland Big Boll, short staple variety and now he has numerous strains of excellent character and high yields which will run from 36 to 38 per cent. lint and which will staple commercial  $1\frac{1}{8}$  to full  $1\frac{1}{8}$ . These are just the cottons which the world is so much in need of. Mr. Coker writes to say that he has one strain of this cotton this year that is yielding considerably more than a bale to the acre and the seed of this variety will be available for distribution a year hence.

Our visit to the fields of the Pedigreed Seed Company was most instructive and we realized that if the work performed there would be more genuinely utilized by the cotton growers, it would mean adding

considerably to the size of the American cotton crop in spite of the boll-weevil, but of course it takes many years before so vast an area as the cotton belt will learn the lessons that are being taught at Hartsville and, probably to a lesser degree, in some other cotton seed breeding places

MANCHESTER,

ARTHUR FOSTER, ARNO S PEARSE.

November 3, 1923



Pedigreed Seed Company, Hartsville, S.C. Cleveland Big Boll Breeding Plot.  
*(Each row represents plants raised from different seed Mr. David R. Coker, standing erect and Mr. H. T. Weber, examining the lint)*

INDEPENDENT REPORT ON COTTON VARIETY TEST BASED ON YIELDS OBTAINED BY PEE DEE  
EXPERIMENT STATION, FLORENCE, SC

Row No	Variety Name	Yield of Seed Cotton per Acre		Per cent of Land of Test		Length of Oil Unit		Percent of Seed		Value of Seed and Yield per Acre	
		Seed Cotton per acre	Per cent of Land of Test	Length of Oil Unit	Length of Oil Unit	Percent of Seed	Percent of Seed	Value of Seed and Yield per Acre			
1*	Colcl's Cleckland	1.916	78.1	70.7	70.7	19	142.7	20.7	142.7	10	12
2	Woolsey's Cleckland	2.186	80.0	60.2	60.2	19	17.3	21.40	18.2	17.3	7
3	Winnamker's Cleckland	2.211	80.0	60.2	60.2	19	17.3	21.40	18.2	17.3	6
4	Pee Dee Dix Cook	1.961	77.9	71.1	71.1	19	17.3	21.40	18.2	17.3	7
5	Long Star	1.966	77.9	71.1	71.1	19	17.3	21.40	18.2	17.3	7
6	Over the Top	1.93.9	74.2	66.3	66.3	22	16.2	20.9	21.98	18.9	11
7*	W. Chil. 49 Sh. Inn. 4	1.65.8	31.7	32.2	32.2	7	19.2	2.27.1	1.7	22.97	9
8*	Lahdanne's 1.9pt. 49	1.94.0	0.7	70.7	70.7	7	19.2	2.27.1	1.7	22.97	9
9*	Dixie Cook's Cleckla	2.259	72.7	72.2	72.2	4	4.3	5.5	2.19	6.6	4
10*	Hartsville 16.3	1.970	71.7	61.2	61.2	7	2.1	2.7	1.7	2.1	1
11	Robert's Long Staple	1.55.2	76.2	4.9	4.9	7	2.6	70	2.1	2.1	1
12	McClellan's W. Rec. 49	1.64.1	24.7	9.1	9.1	9	1.2	6.6	1.7	5.7	11
13	Brown's Dixie Cook	1.862	37.7	69.8	69.8	19	1.5	5.5	1.7	5.5	10
14	Dixie Triumph	2.106	5.6	7.0	7.0	10	1.50	1.50	2.0	1.50	11
15	Stoney's Get Ready First	1.94.2	38.4	70.9	70.9	19	1.74	1.74	2.0	1.74	11

INDEPENDENT REPORT ON COTTON VARIETY TEST CONDUCTED BY EDGECOMBE SEED BREEDERS,  
ASSOCIATION AT CONETOE, N.C.

Row No	Variety Name	991 Irrly Pct.		Total Pick.		Per cent of Land		Yield of Land		Length of Oil Unit		Price of Land		Value of Seed and Yield per Acre	
		991 Irrly	Pct.	Total	Pick.	of Land	Land	Yield	Land	of Land	Length	Oil Unit	Price	of Land	Value of Seed and Yield per Acre
1	Long Sh. McClellan Big Boll #11	2.00	102.0	17.8	487.1	1.1	1.1	110.14	6.7	11.18	1.1	1.1	10.00	11.00	11.18
2	McClellan Big Boll #11	2.7	102.0	22.0	61.8	1.1	1.1	99.17	6.7	11.02	1.1	1.1	10.00	11.00	11.02
3	McClellan Big Boll #48	1.81.2	94.1	2	32.0	3.3	2	67.17	6.7	11.02	1.1	1.1	10.00	11.00	11.02
4	Dixie Triumph	106.2	93.6	2	36.2	3.16	2	67.17	6.7	11.02	1.1	1.1	10.00	11.00	11.02
5	McClellan Big Boll #0	0.37.1	96.2	3	3.2	3.38	1.7	121.7	6.7	11.2	1.1	1.1	10.00	11.00	11.2
6*	Dixie P. Webber	62.2	1.012.2	3.2	3.2	3.37.1	1.7	6.7	6.7	12.16	1.1	1.1	5.00	11.00	12.16
7	McClellan's 1.9pt. 49	78.7	8.62.5	37.7	3.5	1	19	6.7	20.0	9	1.7	1.7	5.00	11.00	17.00
8	Cleckla and Big Boll	1.91.2	912.2	39.0	3.16.8	1	19	60.19	10.0	1.7	1.7	1.7	6.00	11.00	10.00
9	Ricks	887.1	912.2	33.6	30.6	5.5	19	58.5	6.0	9	10.0	1.7	4.00	11.00	4.00
10*	Webber 49 Sh. Inn. #4	300.0	762.2	32.0	234.0	11	11	90.25	11.00	11.00	1.7	1.7	9.00	11.00	9.00

\* Pedigreed Sec 1 Co Hartsville, S.C.

## American Cotton Talks.

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**N**OW that the stalks of cotton are all that is left on the fields of a record area planted with cotton in the U.S.A., the time does not seem inopportune to take stock of the events of the past season and to look ahead as to coming times.

Right up to July the predominant attitude of cotton spinners and merchants was bearish—predictions of a 14 million bale crop were quite the ordinary views taken, certainly the majority of interested parties expected anything between 13 and 14 million bales. The cables warning against such a high figure of expectancy which the Crop Reporting Mission of the International Cotton Federation sent to the spinners in July were acted upon by a few, but those of August had evidently induced quite a number to purchase part of their requirements. It is needless to point out what huge profits those have made who took heed of the warning. It may be maintained without fear of contradiction that the cables caused a reversion from the bearish attitude of the spinner to the bullish side and that consequently the trade has benefitted in no small measure by this timely correction in the outlook as to the crop prospects.

The indicated crop of American cotton on the 25th July was stated by the Department of Agriculture to be 11,516,000 bales, and a month later 11,015,000, then again on the 25th October as 10,238,000 bales. This was the last Condition Report of the season, but everything—especially the ginning figures—point to a much smaller crop; indeed, the National Ginners' Association estimate it at almost a million bales less and many private estimates figure the crop at about nine-and-a-half million bales, and this figure holds the field for the present.

On the supposition that we may cut into the carry-over by one-quarter million bales, as a maximum, we shall have an available supply of nine-and-three-quarter million bales. During the past season, with all the curtailment going on, we had a consumption of over  $12\frac{1}{2}$  million bales of American cotton and we then used to the full all outside growths of cotton. A larger consumption of these is hardly possible, as these crops are not considerably bigger—say, at the outside, a quarter million bales more. That would still leave us with a deficiency of two-and-a-quarter million bales.

What is being done by the world's industry to meet this deficiency?

The biggest users of American cotton are the mills in the U.S.A., and as they have not had any hard times during the last few years, they would be able to carry the loss incidental upon short-time working better than Europe, which for years past has had to resort to curtailment on account of lack of orders. Are the U.S.A. mills likely to resort to general short-time to save the world's industry from disaster? Probably not, for their home trade customers—and these constitute the bulk—have a much greater purchasing power than the clients of the European cotton industry. In the U.S.A. one might say a buyers' strike takes place when the cost of raw material reaches 35 cents or  $17\frac{1}{2}$ d. on plantation, an equivalent of 20d. in Europe, but the buyers of European cotton goods, being mainly the small agricultural farmers whose produce is sold in the world's markets at about pre-war prices, have to strike much earlier;

one may say that they are already on strike, as they have consumed for the last year only half their ordinary requirements and in future they will buy only the barest necessities.

The U.S.A. cotton manufacturers are prevented by the Sherman Law from organizing a curtailment of the production of their mills and the International Cotton Federation cannot take action for the introduction of such a scheme because, in the first instance, the Americans do not form part of the organization and it would not dare to suggest illegal operations in the U.S.A. In view of the enormous hardship which would be occasioned to the operatives in the U.S.A. and other countries if the present American method of *laissez faire* be continued, it would seem impossible that the U.S. Government should object to an exception being made to the Sherman Law in this instance, provided the American Cotton Manufacturers' Associations, viz., the Arkwright Club, National Association of Cotton Manufacturers, and the American Cotton Manufacturers' Association, approach jointly their Government. The alternative will be that we shall witness the extraordinary case of mills situated in the midst of the cotton belt standing idle by May or June for want of cotton. Many of the mills in these parts being located in the villages where the whole population is dependent on the mill work, will have to continue work even at a loss, as, otherwise, the workpeople will scatter.

If the mills in the U.S.A. are prepared to stop work on Saturdays and Mondays until the new crop comes in, they would probably succeed in persuading the European cotton spinner to fall into line, although he has already done a big share of short time, due to another cause. We may take it that the world has so far this season used over four million bales of cotton of the new crop, consequently at the present rate the balance of the crop will last the industry until, roughly, the end of April, but the scramble for it is already with us and will be intensified more and more as the season progresses.

It is difficult to say whether the European cotton industry is covered for a longer period than the American cotton industry, but in New York this opinion is generally held. The United States use mainly American cotton with their  $37\frac{1}{2}$  million spindles, at the rate of 180 bales per 1,000 spindles per year, whilst Great Britain, with  $56\frac{1}{2}$  million spindles consumed during the last years only 48 bales of all kinds of cotton per 1,000 spindles.

The countries using the largest amount of cotton ought to give the lead in such an action of general short-time working.

The existence of a combined short-time organization will not only have the effect of "spinning out" the cotton, but the very announcement of an agreement, or of a possible agreement, would tend to bring the price of the raw material to more reasonable limits.

And what are the prospects for the next season?

We have had a record acreage in the U.S.A. producing the almost lowest yield known, say 128·9 lbs. per acre. It must be admitted that Nature was against the cotton crop this season, but the main reason for the falling-off was the boll-weevil. No decided progress has been made in the methods of attack on this pest, indeed, the loss suffered will probably exceed that of any previous season. To assess a figure for the losses caused by boll-weevil is a thankless undertaking, as Mr. Edward E. Bartlett, jr., the President of the New York Cotton Exchange, has found out when he calculated it at \$750,000,000. It must be borne in mind that if there had not been a weevil pest, the crop would have reached

15 million bales and the price would have been, say 9d. per lb., instead of a probable average for the season of about 18d. This means for nine-and-a-half million bales at 18d. £356,250,000 are paid, and 15 million bales at 9d. £281,250,000 are paid.

It follows that the smaller the crop the higher the income to the farmer and to the nation as a whole.

This is not a healthy state of affairs. The recognition of this fact will not stimulate the finding of a remedy for the weevil. Perhaps we shall see more monuments being erected to the glory of the boll-weevil, not for having taught diversification of crops, but for having brought almost half as much money again to the farmers as they would have received had the weevil not existed. The boll-weevil will not be considered a misfortune but a blessing and under those conditions we cannot expect the energetic application of weevil remedies, and this will tell on the size of the crop, even if 10 million acres are planted in the next season. That, no doubt, is the limit of acreage which we can expect in view of the exodus of labour which cannot be easily transported back. The high prices ruling will certainly cause some extension of last year's record area, but in this connection we must not forget that one of the first conditions in the weevil fight is the reduction of cotton acreage within the limits of available labour supply and that more intensive cultivation is necessary. It is true that the weather conditions during last season were abnormally bad, yet the Eastern States are bound to pull down the average of every crop, so long as the weevil is with us, and Texas and Oklahoma make a good crop only three years out of five. Texas may, however, bring five million bales with luck, and, in that case, a crop of about 12 million bales would be feasible. But of what avail would that be? Surely by next year the economic conditions of Europe and of the rest of the world will have improved, with the consequent demand for more cotton goods! Last year, with all the trade depression, we used more than 12½ million bales of American cotton and therefore, even such a "bumper" crop as 12 millions from the U.S.A. would not be anywhere near enough for the 1924-1925 season. The salvation of the cotton industry, not only in Europe but also of the U.S.A., depends on the extension of cotton growing in other countries and there are plenty such places, but capital investment is needed and it should be a paying proposition.

F. HOLROYD,

*President of the (English) Federation of Master Cotton Spinners' Associations Ltd., and Vice-President of the International Federation of Master Cotton Spinners' and Manufacturers' Associations.*

MANCHESTER, NOV. 21ST, 1923.





## British Empire Cotton Growing.

No country is more affected by the scarcity of raw cotton than Great Britain, and the Government as well as Lancashire cotton circles are straining every effort to relieve the situation by an extension of cotton cultivation in the British Empire. The following comprehensive statement was recently prepared by SIR JAMES CURRIE, the Director of the Empire Cotton Growing Corporation, at the request of the Colonial Office for presentation to the Imperial Economic Conference which recently met in London. This statement is the carefully considered opinion of experts and is not dressed up in any optimistic style, but gives the plain facts, for which reason it deserves the careful attention not only of the British cotton spinners and manufacturers, but also those in the other countries of the world, for it does not matter where additional quantities are grown, the cotton industry in *all* countries benefits by such development. Cotton growing is bound to be of international and not merely national benefit.

"The necessity for the increase of the supply of raw cotton from within the Empire, and the danger of complete dependence on the United States as a source of supply have engaged the attention of the Heads of the Lancashire cotton industry for the last quarter of a century. In 1902 the British Cotton Growing Association was founded, and since that time and most notably during the last ten years, has never ceased to invite the attention, both of Lancashire and of the Government of the day, to the dangers of the situation.

"Considering the limited means at its disposal, the Association has done a great work in stimulating the production of cotton in all parts of the Empire, though the African Continent has inevitably taken up the greater part of its attention.

"The outbreak of the world war, and the economic developments arising therefrom, emphasized afresh the critical nature of the position, and so far back as 1915 the President of the Board of Trade called into being the Empire Cotton Growing Committee to consider the situation in all its aspects. Their report, which was presented in October, 1919 constitutes an unrivaled mine of information, alike as regards the prospective needs of the industry, and the serious nature of the dangers that threaten it. It also provides a mass of information concerning the capacity of the various Colonies and Dependencies to meet these needs. As a result of this report the Empire Cotton Growing Corporation has been formed under Royal Charter, and is representative

of all the interests concerned in the cotton trade, whilst the great Departments of State are also adequately represented. The Corporation is in possession of an assured and substantial income, derived in part from a capital contribution of nearly one million pounds made by the Government, and in part from the proceeds of a levy of sixpence per standard bale on all cotton imported into and spun in the United Kingdom. This levy, in accordance with the wishes of the great majority of the trade, has been made obligatory on all spinners and is enforceable at law, in terms of an Act of Parliament which received the Royal Assent on July 18, 1923.

"The value of the work of the Corporation can only be judged after some years have elapsed, but it is to be hoped that the results obtained will be worthy of the knowledge, the enthusiasm and the foresight that have triumphed over all obstacles and brought it into being.

"It can safely be said that the progress of events since the Committee reported has thrown into still greater relief the dangers of the situation. The price of American cotton, on which Lancashire is still in the main dependent, shows no sign whatever of adjusting itself to the reduced purchasing power of either Europe or the East. The quantity produced has largely fallen off, from about 1.4 million bales to between 10 and 11 millions, whilst the cotton mills in the States continue to increase.

"It is a matter of extreme difficulty to hazard an opinion as to what the course of production of the raw material in the United States is likely to be. At present appearances indicate that recovery will not be rapid. Even the resources of its Great Department of Agriculture have not yet imposed limits to the destruction wrought by the boll-weevil.

"Another adverse factor is the dislocation of the labour supply caused by the migration of negro cultivators to industrial occupations, due to the restriction of immigration which, at present at all events, appears to have become part of the settled policy of the United States.

"The quantity of cotton produced has diminished by nearly 30 per cent. from the 1913 figure, while the cotton mills in the States are consuming the raw material in an ever-increasing degree. So fast has been the ratio of increase that many authorities declare that in a very brief period the whole production of the United States will be consumed in that Continent, and that in addition the American mills will have to be reckoned as importers, on an increasing scale, of the fine Egyptian varieties. Although that may be an over-statement, yet considering that in 1913 the Lancashire import of American cotton was nearly four million bales it is obvious that with the restoration of the Lancashire cotton industry to anything like its pre-war production—to say nothing of the revival of manufacture on the Continent—the demand for raw material in Europe will indeed be urgent, and a famine of the raw material can easily be conceived which, on account of the accompanying high prices, will suffice to prevent that revival of the cotton industry which is alike a vital social and industrial necessity for this country. And in this particular instance the interests of an individual industry and of the nation as a whole entirely coincide.

"The slightest consideration of the present economic situation makes this plain. There can be no doubt that the payment of the interest and ultimately the capital of the American Debt will strain the resources of the United Kingdom very severely, especially as it is not easy to see, at all events with the present trend of American economic policy, how

payment is to be made in terms of an increasing export trade from the United Kingdom.

" It is plain that the payment of our bill for raw cotton in sterling, and not on a dollar basis, would constitute a great alleviation of the financial situation, as between the United States and ourselves.

" This being the position it is desirable to examine the extent to which the various parts of the Empire are capable of supplying our requirements, and to give some account of what has been and is being done to solve the problem.

" As regards the type of cotton needed, it would appear that Lancashire will in the future more and more demand the finer qualities, for it is in the manipulation of these qualities that the unlimited skill and aptitude of the Lancashire workman will enable his industry, for many years, to defy the keenest foreign competition. Eastern competition, in India and Japan, is sure to increase, but the form it will take will consist, for many years, of augmented production of the coarser counts.

" In considering the detailed possibilities of the various parts of the Empire, a beginning is naturally made with the African Continent.

" 1. EGYPT.—The greatest producer is, of course, no longer a part of the Empire, but so closely connected with it that she may usefully be included in a review of this kind.

" The history of Egyptian cotton production since 1908 has been rather a sorry one, the aggregate yield has diminished, and the average yield per acre has diminished even more, and it is not possible to take a very optimistic view of the immediate prospects of cotton production in that country. Before the productivity of Egyptian soil can be restored and sustained hard work, much of a highly scientific nature, will be necessary. The political atmosphere which will obtain in Egypt for the next few years will be unfavourable to the steady working out of these problems, which must largely, if it is to be serious, be in the hands of European specialists. In the early future, in an atmosphere of enthusiastic nationalism, it appears doubtful if such specialists will have a fair chance—and there is no other path of progress possible.

" 2. THE SUDAN.—Here the immediate prospect is better. The large and immediate increase of the cotton growing area is now assured. The wise assistance rendered by the United Kingdom will render it possible to bring under cultivation during the next few years an area of nearly half a million acres in the Blue Nile and Kassala areas, from which an increased yield of 150,000 bales ought to be possible.

" Encouraging though that sounds, far greater prospects remain. If it were only possible, by means of an understanding with Abyssinia, to exploit fully the irrigation possibilities of the Blue Nile, a new African cotton belt would indeed be called into existence to restore the balance of the American, and some five million acres of the finest cotton growing land in the world would be capable of immediate development.

" The system under which the bulk of the cotton is at present being grown in the Sudan merits more than a passing reference. The proceeds of the crop are pooled, and the results are distributed on a carefully devised plan. The native, who does the cultivation receives 40 per cent., the Government, which supplies the land and the water, gets 35 per cent., and the capitalist, in this case so far represented by the Sudan Plantations Syndicate, undertakes the general management, does the minor canalisa-

tion, ploughs the land and supervises the cultivation, does the ginning and finances the crop, and receives 25 per cent. So far the arrangement, which, if not actually devised by Lord Kitchener, was most warmly approved by him, has worked smoothly, and commanded the complete confidence of the native cultivator. This scheme would appear to be worthy of careful observation, as it would seem, at all events in this particular area, to secure to the native the full fruits of his labour, and to retain him on the land without any suspicion of exploitation, while at the same time full advantage is taken of capitalistic enterprise and scientific knowledge.

" 3. UGANDA.—The progress of cotton growing here has been remarkable, and what is even more striking, the actual growing is entirely in the hands of an intelligent and enterprising native population, though ginning and financing are to a large extent in British and to a lesser extent in Indian hands.

" The crop, unknown in Uganda 20 years ago, was estimated this year at 100,000—120,000 bales,\* and will subject the existing transport facilities to a severe test. Uganda cotton is of excellent quality, and it is used against stapled American as well as Upper Egyptian for counts ranging from 30's to 46's twist and 42's to 64's weft. Development depends upon increased individual planting and the provision of further transport, and progress for the next few years appears well assured. As time goes on it is reasonable to imagine Uganda a producer of a million bales per annum.

" The principal obstacle to be faced at present is the long transport from the Protectorate to Mombasa, with its repeated breaking of bulk and changes from steamer to rail. The financial difficulties of the times also render it difficult to keep communications geared up, either as regards personnel or rolling stock, to deal with what partakes of the nature of a seasonal trade. The Colonial Office is, however, fully alive to the fact that room for improvement exists, and gradual progress, as funds permit, may be expected.

" 4. NIGERIA.—The possibilities here appear great. The British Cotton Growing Association has toiled here for many years, and its labours are beginning to bear fruit. It has assisted the Government in the provision of improved types of cotton, the American variety known as Allen's having yielded the best results so far in the Northern Provinces. Seven thousand bales of this cotton were marketed in 1921 as against eleven bales in 1914. During the late disastrous slump the British Cotton Growing Association guaranteed a price, and carried on its own shoulders the risk that would otherwise have fallen on the native cultivator. It has established gineries throughout the country, and altogether has played a most important part in the establishment of the industry.

" The Empire Cotton Growing Corporation is also endeavouring to render assistance in Nigeria. Next to transport, the greatest need of the country is probably a substantial addition to its expert agricultural staff, and, as the result of much discussion between the Nigerian Director of Agriculture and the West African Committee of the Corporation, a scheme is now under the consideration of the Nigerian Government by which a cotton specialist of standing and five trained junior officers will be at the disposal of that Government, the cost to be borne by the Corporation.

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\* Actual yield about 90,000 bales of 400 lbs.

" The total amount of cotton exported from both the Northern and Southern Provinces in 1921 was 31,500 bales, as compared with under 6,000 in 1918, and what is of special importance to Lancashire is the fact that of these 31,500 bales a fair proportion was improved long staple cotton, by which it is hoped ultimately largely to replace the indigenous variety.

" Prospects in Nigeria appear, therefore, to be good, and a steady increase in cotton production well nigh certain. Possibly the system of land tenure may, as the years go on, call for modification as population increases, and intensive cultivation slowly emerges. Progress would be facilitated if European ownership were not entirely banned ; such ownership would be stimulating and educative, and it is not difficult to devise a system which would render this possible without any interference with the rights of the native in the land of his own country. At all events a careful study of Sudan arrangements, and the system of joint ownership set up in that country, would be a profitable exercise for the Nigerian Government. If progress be continued, a million bales might not eventually be beyond the compass of Nigeria.

" 5. NYASALAND.—Here again the prospects are promising, though, of course, the country is not very large. Eighty per cent. of the cotton is grown on European-owned plantations, some of which have established solid reputations. Very much has to be done, however, in the way of improving both seed supply and cultural methods, both among natives and Europeans. In order to help as far as possible the Empire Cotton Growing Corporation has lent the Government of Nyasaland a first-class expert who will make a two years' tour in the country, and it has also provided him with capable technical assistance.

" Railway communications in Nyasaland have much improved of recent years, and the prospects of extension appear good. In a dozen years 100,000 bales ought not to be beyond Nyasaland's possibilities.

" 6. UNION OF SOUTH AFRICA.—Though the past history of the industry here has been rather disappointing, it is known that cotton of useful quality can be produced on a fairly large scale in parts of the Union, in the Northern Transvaal, in parts of Natal, in Swaziland, and in Zululand. It is, however, no use disguising the fact that the attendant difficulties to be overcome are numerous and formidable. Vast competing industries—notably gold mining, paying labour on a high scale—considerable and increasing manufacturing enterprise, and difficulties of land tenure, unite to create obstacles which are not to be found in other parts of Africa.

" The Empire Cotton Growing Corporation is anxious to help, and with this end in view, has sent out a former Indian official of wide experience, who has made an elaborate report on the possibilities of cotton in the country. This report is at present receiving most careful consideration.

" 7. TANGANYIKA TERRITORY (MANDATED).—Formerly German East Africa, this is a large country of about 350,000 square miles, with a population of at least three millions. Before the war the Germans had directed a good deal of attention to cotton growing. Last year the yield was 10,000 bales of very fair quality. The Cotton Corporation is endeavouring to help here, and has secured for the local Government the services of another first-class expert with wide experience and high

scientific attainments who, it is hoped, may help to lay the foundations of the industry on a sound basis.

" 8. KENYA COLONY.—A small amount of cotton has been grown in this Colony for a number of years, but the annual production has never exceeded a few hundred bales. Experiments carried out in the Tana district did not meet with any great success, and though cotton can be grown on the Juba River, it is to the Kavirondo district that we must look for any considerable advance. Here prospects appear good and four ginneries have recently been installed.

" 9. INDIA.—As a direct contributor to home needs, India does not at present bulk so largely as might be expected. She produces, on a rough average, some four-and-a-half million bales per annum, and according to the latest figures only 107,000 were consumed in the United Kingdom during the year ending July 31, 1923.

" India's exportable surplus increased from nearly two-and-a-half million bales in 1920 to nearly three millions in 1922, of which half was taken by Japan and about one-third by the Continent. The demand both in India and Japan for comparatively finer counts is likely to increase.

" The results achieved in the Punjab where cotton of about one inch staple has been successfully grown from seed imported from America are highly satisfactory, and there is every prospect of steady progress in the future. The Indian Government, recognizing the need for improvement and the fact that the necessary impetus would have to come from India herself, has tackled this problem with commendable promptitude. The newly constituted Indian Central Cotton Committee should do much to increase the production of those varieties of Indian cotton which are suitable for the finer counts. Just in proportion as they succeed will the Indian demand for the finer African qualities be eased, thus leaving the more for British demands. If any marked increase were to take place in the amounts of the finer qualities grown in India, Japan's demand in Africa, which likewise shows signs of becoming a factor in the situation, would be materially lessened.

" 10. IRAQ (MANDATED TERRITORY).—The production here amounted last season to about 300 bales, whilst about 1,000 are expected this year, a considerable increase, which would have been greater had not insufficient water in some districts and floods in others combined to decrease the area harvested.

" Even without vast capital expenditure on irrigation works, it is certain that a very considerable amount of fine staple cotton could be produced by means of pump irrigation, but it is vain to suppose that anything can happen till political conditions are stabilized.

" 11. AUSTRALIA.—So far as climate and soil are concerned, the possibilities here are very great, at all events in Queensland and in New South Wales. Both the Commonwealth Government and the various State Governments have taken the matter up with energy. Price guarantees have enabled the colonist to embark upon what was to him a new crop, and it is reported that in Queensland alone 100,000 to 150,000 acres were planted. A severe drought was experienced this year, but it was found that cotton, when well cultivated, resisted the drought better than almost any other crop, and about 16,000 bales were hoped for. Labour, its quality, its efficiency and its cost, is the doubtful factor in the situation.

Australian statesmen are confident that their cotton grown on the basis of white labour can compete in the world's markets, and that there is nothing in the conditions incidental to cotton cultivation which white labour cannot successfully and profitably face. If Australia is found to be right in this view, Lancashire will be the first to congratulate her. The climate and soil are excellent, and there can be no doubt about the quality of the cotton they are capable of producing. It is entirely a matter of price, and price must be calculated over a period of years.

"The Empire Cotton Growing Corporation is rendering what help it can. It has secured the services of Colonel Evans, late Director of Agriculture in Bengal, and is lending them to the Queensland Government for a period of years.

"12. BRITISH WEST INDIES, notably the Leeward Islands, the Windward Islands, and Barbados, remain to be mentioned. They produce, in an average year, 4,500 bales of 400 lbs. of the finest quality, the famous Sea Island cotton. In spite of the fact that, thanks to devastations of the boll-weevil in the States, they enjoy a monopoly of the production of this type, they may be said to be the only section of the Empire cotton growing industry which is at the present moment not enjoying a moderate amount of prosperity. Their product, on account of its fineness and length of staple, can only be used for a luxury trade, being in the main used for lace and the finest cotton fabrics; an acute depression in Europe has dealt the demand for such cotton a heavy blow. Stocks have accumulated, and effective demand is grievously curtailed. Manufacturers in this country have bought and carried stocks to the full extent of their capacity for more than a year, and the limits of possible assistance in this direction unfortunately appear to have been reached. Severe reduction of acreage next season appears inevitable, and indeed desirable, but an ultimate recovery of demand is certain—it is only to be hoped that it may not be too late for many cultivators.

"The Empire Cotton Growing Corporation, recognizing fully the importance of the Sea Island cotton, are maintaining, at St. Vincent, a well-qualified research worker who is devoting his whole time to the study of problems connected with the genetics and the cultivation of improved types, so that, when demand revives, this variety will retain, and perhaps improve upon, its unrivalled qualities.

"13. CYPRUS.—A short staple cotton has been grown in the island for a great many years, whilst latterly experiments have been carried out to test the suitability of American cotton under irrigation. Possibilities are considerable if sufficient water can be obtained to irrigate the area suitable for cotton. The largest quantity exported in any one year was 4,380 bales of 400 lbs. in 1917.

"This brief geographical survey of Empire possibilities is not completely exhaustive, Ceylon, Fiji, New Guinea, and British Guiana, and some smaller islands, have not been touched on, for the reason that their efforts have not yet gone beyond the preliminary or experimental stage, but it has established the fact that the land and the required climatic conditions both exist in ample measure, and, though this is not so certain everywhere, the necessary population. Apart from the provision of the necessary capital, communications, expert staff, and adequate means of transport are the limiting factors of the rate of progress."

The final part of Sir James Currie's Statement relates to the training of

the staff, the establishment of the Imperial College of Tropical Agriculture at Trinidad, grant of scholarships, research work, and the publication of a quarterly journal. On the question of "Transport" the Director states :

" Considerable progress has been made in all parts of Africa during the last 15 years, and it is clear that the Conference may mark the beginning of a new era of progress in that direction.

" The providing of Imperial credit under the Trade Facilities Act, the primary object of which is admittedly to ease unemployment at home, has shown what may be done. But, as regulations at present stand, assistance cannot be given under the Act unless the certainty of immediate return on capital can be demonstrated. Comparatively few railway projects overseas, notably African railways, can be brought under this category. Time must be given to many promising projects to collect their own traffic and to justify themselves. It is to be hoped that the Committee at present considering the subject may take a larger view, and that a considered programme extending over a term of years may be adopted, and that private enterprise and direct Government construction may unite in carrying it into effect."

## Cotton Growing in the Sudan.

**T**HE chairman's address at the sixteenth general meeting of the Sudan Plantation Syndicate, Ltd., contains several items of general interest, viz. :

In July an interim dividend was paid of  $7\frac{1}{2}$  per cent. and now a further 10 per cent.,  $17\frac{1}{2}$  per cent. in all, are distributed, adding £6,331 11s. 8d. to the carry-over.

Mr. F. Eckstein, the chairman, mentioned that the "total shipments for the past year, inclusive of 241 bales purchased locally, amounted to 12,266 bales, of which 6,890 bales, including the whole Zeidab crop had been sold by the 30th June, and the remaining 5,376 bales have now all been disposed of at prices exceeding our valuation.

" The erection of buildings for our staff proceeded, large new areas were prepared for cultivation, 40 new gins were added to our factory at Wad Medani, and last, but not least, the new pumping installation at Wad-el-Nau was completed, and all the work necessary for the doubling this year of our area under cotton in the Gezire was carried through. On the other hand, our profit and loss account may perhaps not be quite up to your expectations. Gentlemen, this should not disquiet you. After a lengthy stay in the Sudan at the beginning of this year I have returned with unshaken confidence in the soundness and ultimate success of our undertaking. In a country whose future is bound up with steady progress in agricultural development no one, in my opinion, is more convinced of this than that very efficient Government in Khartoum.

" Let me now tell you what our stations have done. Zeidab : I ventured to forecast last year a profitable result of our operations there. This, I am happy to say, has come true. We had a good crop and realized same at good prices. For the coming year the prospects are likewise promising. We have already picked something like 9,000 kantars and the first shipment is on the way. Last year we had 4,317 feddans under cotton.

This year, including water tenants, we have a somewhat larger area. Tayiba has also done well. From 1,680 feddans we gathered 7,457 kantars, or nearly 4½ kantars per feddan. This year we have 1,765 feddans under cotton, but the crop has suffered somewhat from heavy rains, necessitating a good deal of resowing. Barakat yielded 8,186 kantars from 2,006 feddans, just slightly over 4 kantars per feddan, which is quite satisfactory. Hosh : At the time of our meeting last year the crops at this station promised to be extraordinarily good, but, unfortunately, later on we suffered rather badly from an insect pest called hrips, which reduced the expected yield very considerably. However, we managed to pick 23,392 kantars, equal to 3½ kantars per feddan. In addition to these stations, we have this year the new areas served by the Wad-el-Nau pumping station and extending roughly to 10,000 feddans, which means that our cotton area in the Gezira is doubled. These additions augur well for the future and speak highly for the activities of our staff in the Sudan. According to our latest cables it is too early to express an opinion regarding the new crop, but this much appears certain—we shall have to deal this year with a rather late crop, which in itself is never quite satisfactory.

" As mentioned before, I spent the early part of this year in the Sudan, and you might probably like to hear something of my work there and of the impressions I formed. I left England towards the end of last year and arrived towards the middle of January, at Port Sudan, where I was met by our managing director, Mr. Alexander Macintyre, and our manager, Mr. H. Poyntz-Wright, and during the whole of my time in the Sudan I had always at my disposal the ripe experience and wise counsel of these friends, and I wish to record my grateful thanks to them. We stayed two days at Port Sudan inspecting the harbour, its shipping facilities, and a ginning factory belonging to the Government, and we selected some plots of land suitable for warehousing cotton in the future. We then motored to Suakin and again from there to Tokar, which I was most anxious to see, it being a large cotton area producing cotton of very fine quality. But what interested me even more was the fact that the conditions under which cotton is grown in Tokar are similar to those ruling at Kassala. In both places cotton is planted after the annual flood, and thereafter receives no further watering. I think I saw everything I wished to see, and my thanks are due for the great courtesy and assistance I received from all the Government officials there. From Tokar I returned to Suakin and went by train to Zeidab, our most northerly station. In company with our senior inspector there, I visited the whole estate, and renewed my acquaintance with all our officials. The crop at Zeidab, consisting of American cotton of an early maturing kind, was nearly gathered, and as I have already told you, was very satisfactory, so I left in good heart for Khartoum, where I paid my respects to his Excellency the Governor-General and other officials. After two days I left for Barakat, which is the headquarters of our syndicate's operations.

" After my arrival there I lost no time in visiting all our stations, where picking was in full swing, and where I heard, for the first time, no complaints as regards lack of labour. I have already dealt with the results of our various stations, and so I wish to say a word or two about our two latest pumping stations. First, I want to mention Hag Abdulla. Two years ago I saw only a big hole in the ground, now I found a complete pumping installation equipped in the most modern style, throwing out water at the rate of four tons per second, and enabling us to irrigate

something like 6,000 acres of cotton on the Hosh area. The plant was working without a hitch, and does not give us an anxious moment.

" Next I visited the new Wad-el-Nau pumping station. Here a year earlier there had not been even a hole in the ground. On my arrival I found very near completion a most perfect installation, and as good as any to be seen in the whole of Africa, and it is certainly a monument of quick work well done. The three pumps are capable of delivering six tons per second, 360 tons per minute, which is equal to 80,000 gallons. The maximum head is 25 m., and the rising main is 6 ft. diam. and 2,170 ft. long, and is capable of irrigating 10,000 feddans of cotton land.

" The firm of Messrs. W. H. Allen, Sons, & Co., of Bedford, manufactured the pumps and supplied and erected the whole plant. The execution of this work ahead of contract time reflects great credit upon this firm.

" Barakat pumping station is an old installation and not satisfactory, but it will not be needed much longer.

" Tayiba pumping station was working well.

#### KASSALA COTTON COMPANY.

" After a week's stay at Barakat, I left with Mr. Macintyre and Mr. Hewison, Director of Agriculture for Kassala. This trip took nearly a fortnight, half of which was spent at Kassala and the Gash Delta. The Sudan Plantation Syndicate, Ltd., subscribed to the Kassala Cotton Co. 250,000 6 per cent. preference shares of £1 each, now 1s. paid up, and 500,000 ordinary shares of 1s. What I want to tell you to-day is that I visited the whole area from south to north and west to east—it has a length of something like 50 to 60 miles and varies in breadth—and that I am satisfied that you are interested in a very promising concern, but for results you must have patience.

" The new company will plant their first crop in 1924, but works such as digging channels have already started. It may interest you to hear that during the past year something like 13,000 kantars of good cotton was picked in the Kassala province.

" Whilst at Kassala we had the privilege of meeting his Excellency the Governor-General and several members of his Council, and consequently were enabled to have useful and helpful conferences regarding future developments there. Again, at Kassala we were treated with the greatest courtesy, and experienced wonderful hospitality from all the officials stationed there, and I would like to put on record my warm appreciation and gratitude. We left Kassala full of confidence in the future, and returned via Khartoum to Barakat, where I spent another most interesting fortnight, inspecting chiefly the outlying areas of the 300,000 acres scheme.

#### BARAKAT.

" I wish I had the ability of conveying to you even an imperfect picture of the magnitude of this undertaking. You will realize it to some extent when I tell you that the length of the area is something like 60 miles, whilst the width varies from 10 to 20 and 25 miles. The major canalization, extending from the Makwar dam through our area, amounts to near 900 miles, whilst the minor canalization amounts to something like 11,000 miles. To inspect this area, to see its soil, to visit its villages and to talk to their inhabitants takes days and days of constant motoring, and, though

I tried my best to do as much as possible, I do not suppose I have seen half of it. You will want to know how we propose to work and organize such an immense task. Well, we propose to divide these 300,000 acres, into 20 stations of about 15,000 acres, and each block will be self-contained, and will be managed by a chief inspector, whose house, office, clerks' house, etc., will be erected in the centre of the block, whilst on either side of him will be the houses for the assistant inspectors. We are now in the midst of carrying out this programme, and have actually completed so far about five blocks. We have also to build and erect four ginning factories, two of which we hope to complete during the coming year. During my stay I also visited the Makwar dam and was informed that there is every likelihood of its being finished in 1925 and ready to supply water for a considerable number of acres. We therefore have to get ready and speed up work more than ever. To illustrate what I mean we have to develop and to arrange for the minor canalization of the greater part of the 300,000 acres area before July, 1924, in order to be able to start ploughing in October, 1924, an area commensurate with the anticipated water supply from the dam in the first year."

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## COTTON GROWING IN NYASALAND.

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The *Manchester Guardian Commercial* published recently an article from a planter from which we extract the following :

"The possibilities of cotton growing in Nyasaland must be examined from two distinct points of view—that of the European and that of the native. Europeans grow 80 per cent. of the total amount of cotton exported at the present time, and most of this is produced at the lower elevations and cannot be regarded as offering much opportunity for development. Here the climate is malarious and unhealthy, and this district is therefore more suitable for native exploitation.

"In the highlands above 2,000 ft. cotton growing is regarded by planters as a very speculative proposition. The usual crop here is only about 80 lbs. per acre, although many crops have been reaped of 150 lbs. per acre. One successful tobacco planter stated that in 10 years he had only had one good cotton crop in the highlands. The reason for this in great part is that the methods of cultivation up to the present have been extremely primitive. The usual method was to clear 500 acres with the hoe, scrape the soil into small ridges, and sow the seed by hand on top of these. An occasional weeding was all that was done while the plants were growing. As soon as the land was worked out it was abandoned and a fresh acreage was cleared. The ordinary cotton pests are not so troublesome here as in the lowlands, but enormous havoc is wrought by the mists that come over from Mlanji Mountain in June and July. Just when the cotton is ripening the sun disappears for perhaps a week on end, "boll rot" soon begins and quickly spreads throughout the fields. This is by far the worst disease from which the cotton suffers, and apparently nothing can be done to prevent it. It is so bad that there is no uncommon sight to see a whole field looking brown instead of white during the ripening season.

"Experiments are, however, now being carried on by private planters under the supervision of the Department of Agriculture, with a view to making the plants mature earlier, during the months of April and May, while the temperature is higher and the mists less troublesome. Various

systems of planting new to the country are being tried. Of these the 'Cook' system seems to show the greatest prospects of success. The seeds are sown very close together, and the plants are thinned out several times by hand as they grow up. This has the effect of stunting the growth and making the bolls ripen earlier. A much better result is obtained in Nyasaland from several small plants maturing a small number of bolls, than from a large plant which probably only succeeds in maturing a very small percentage of the total bolls it produces. Fertilizers, too, have been applied with the same idea in view; the plants have been given a liberal supply of phosphates and potash and starved of nitrogen to promote the growth of the seeds and stunt the growth of the foliage.

"Another difficulty experienced by both European and native growers is the lack of proper seed. If the above methods continue to show their present promise this difficulty may be overcome, and a good variety of seed may be produced by selection suitable to the requirements of the country. If better cultivation is resorted to and an early maturing variety is produced, as seems likely, the European side of the cotton growing will have an excellent future.

"The problem of the native is entirely different. Below 1,000 ft. the difficulty is that the rains begin so late in the year that in some cases planting has to be delayed until March, as against November in the highlands. This means that if the late rains fall in May and June the plants are unable to develop. There would seem to be no way of overcoming this difficulty, and since the district often suffers from famine it is little use trying to exploit it. The safest district is from 1,000 ft. to 2,000 ft. along the Upper Shire, the West Shire, and South Nyasa. Here the climate is not suitable for European settlement, but the district should offer every chance for successful native cultivation.

"Apart, however, from the very grave problem of transport, which may possibly be solved by the proposed railway from Luchenza to the Lake, the primitive state of the average Nyasaland native himself is the chief barrier to development. At present he is essentially 'casual' in everything he does. He has not specialized, and anything that savours of specialization bothers him. It is regarded as essential in Nyasaland that the native should have adequate supervision in all he undertakes. The British Cotton Growing Association is trying to stimulate cotton growing among the natives by means of the guaranteed price, but unless some sound system of proper supervision can be arranged, and unless the native is trained to appreciate the value of good cultivation and grading, little development in this direction can be expected for some considerable time."

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### THE INCREASING PRODUCTION OF COTTON IN SOUTH AFRICA.

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The production of cotton was substantially increased in South Africa in 1922, according to a recent report to Washington from United States Consul J. Pesar, at Cape Town. The movement to develop cotton cultivation in suitable areas in the Union of South Africa is receiving much encouragement from British spinners, whose representatives last year conducted an investigation in the various South African States with a view to determining the possibilities of a more

rapid extension of cotton growing for the benefit of the British cotton industry, which is seriously affected by the present deficiency of production in the United States. The Union Government is providing every assistance possible, with the result that there has been a material increase in acreage and yield. Approximately 16,000 acres were cultivated in 1922, with a total production of 1,096,082 lbs. of cotton lint, as compared with 764,584 lbs. in 1919.

The Department of Agriculture estimates that the 1923 cotton yield will greatly exceed the production in 1922, and it is thought that, since there is no demand for raw cotton in South Africa, the entire crop will be exported to England, except a small percentage to France.

During the past year there was a tendency among the growers to co-ordinate individual effort in order to market the crop in a more effective manner. A result of this tendency was the organization of the Central Co-operative Cotton Exchange, Ltd., which was formed under the Co-operative Societies Act passed during the year. The Exchange is an unlimited co-operative society and has for its object the grading, pooling and marketing of cotton grown in South Africa. It also will negotiate loans on the crops of the smaller growers in order to enable them to meet the expense of harvesting and transport.

There now are a number of local associations of cotton growers which, it is thought, will join the Central Co-operative Cotton Exchange, Ltd. One of the societies has erected its own ginnery, which is operated on a co-operative basis; and several other societies also have made plans for the purchase of ginnery machinery. (*Economic World, New York.*)

General Smuts, Prime Minister of South Africa, had a long discussion with representatives of the Empire Cotton-Growing Corporation on the prospects of the colony becoming in the future a serious contributor of raw cotton to Lancashire.

While at present cotton production in South Africa is somewhat of an experiment, it is felt that sufficient progress has been made to bring the possibilities of development well within the range of the practical policy of Empire cotton production.

The conference was mainly concerned with the financial aspect—how far and in what way the Empire Cotton-Growing Corporation could best assist the movement for developing certain large areas of South Africa as cotton-producing districts.

As the outcome it is hoped that rapid progress will be made and that appreciable quantities of good-class cotton will be forthcoming for Lancashire mills.

Sir Howard Georges, President of the Board of Trade of South Africa, who is endeavouring to boom cotton growing in the Colony during the present gathering of the Imperial Conference, discussed the point with *The Daily Dispatch*.

"We want to emphasize to Lancashire cotton manufacturers," he said, "how earnest we are in our desire to extend the growing of cotton in our area to the utmost possible extent."

"Experts tell us that they would not be surprised if in a few years to come South Africa was able to contribute as much as a million bales of first-class cotton to the Lancashire market. Such a position would mean much to us, and we hope to go forward to secure it."

"Mr. G. F. Keatinge, the expert of the Empire Cotton-Growing Corporation, has already reported favourably on our experiments, and supports the theory of the million-bale production in the near future.

"What we feel is that cotton is a crop that will prove a profitable alternative to maize for our farmers, and, further, will attract settlers with a little capital to come out to use and take up land mainly for cotton growing. There seems no doubt that with a suitable market cotton should prove a highly profitable crop to the South African farmer.

"This season alone we shall have over 10,000 acres under cotton, but that is small compared with our desires and hopes.

"We are further taking extreme care to keep out the devastating boll-weevil from our cotton crops. To this end, and to further the scheme in every way we have a special section of our agricultural department composed of experts whose sole duty it is to conduct investigations and advise farmers in every way with regard to cotton growing.

"Our latest scheme is for the erection of a large central ginning plant to deal with the cotton crop, and included in it is a plan to overcome one of our present greatest difficulties. As yet we have not been able to provide any means of making use of the by-products of the cotton crop. Under the new plans we hope to set up a factory for utilizing the cotton seed for producing cattle cake and the other products that add to the value of cotton as a crop."

Sir Howard further offered assurances that the cotton-growing areas of South Africa were climatically suitable to European people, who can settle there with every confidence as to health. Native labour is plentiful and suitable in every way.

In connection with this statement it is interesting to recall that Mr. Keatinge reported a few months ago :

"There is going to be a large development of the cotton industry in South Africa, and the Empire Cotton-Growing Corporation can do much to help and expedite it. Further, the moment is opportune for such assistance to be offered.

"If the Corporation decided to associate itself with this important development, the assistance given must be on an adequate scale. To take full advantage of the existing opportunities a decision should be reached without delay."

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## A PECULIAR COTTON CONFERENCE in SOUTH AFRICA.

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Cotton cultivation is gradually becoming a serious pursuit in South Africa and the authorities of the Union are taking great interest alike in the present experiments and in the progress towards future developments.

In his interesting report to the Empire Cotton Growing Corporation, Mr. G. F. Keatinge tells us that apart from the main cotton belt in the Transvaal and in Zululand, there are other tracts of country where, in his opinion, some cotton could be grown (*see "I.C.B., No. 5," p. 142*). One of these adjoins the south-east coast and is almost limited to the Transkei Territory well outside the main cotton belt.

After explaining very clearly the possibilities and the limitations of this isolated district, he goes on to state that "It is the apparent possibility of growing *long staple* cotton that makes this area interesting." It may be defined as a strip of 100 miles in length and 15 miles in breadth,

in the lower altitudes of the seaward slopes between the Great Kei River and the St. John's River.

A letter just received from a relative of the present writer, dated from Umtata in the Transkei, contains the following :

"There is a decided attempt to develop cotton growing in the Transkei. The Right Hon. F. S. Malan, Acting Prime Minister during General Smuts' visit to England for the Imperial Conference, is making a tour of the Transkei and early in October he spoke at Libode very strongly to the natives on the subject of cotton growing. A friend who was present tells me that the whole setting was of the most interesting character. The natives came in crowds, large numbers in their red blankets, also large numbers in European clothes ; numbers of horses were tethered here and there on the green veldt."

Libode, apart from the native huts, consists of just a few traders' houses, the Mission station and the dwelling place of the magistrate.

"Mr. Malan was attended by secretaries, by the Chief Magistrate of the Territory and his colleagues. The Paramount Chief of the Pondo tribes was clad in a neat blue suit, with very brown boots. His counsellors ranged in a semi-circle behind him, whilst his secretary read his speech. It was a very curious mixture of various stages of civilization ; in fact it was nothing more or less than an International Cotton Conference."

Cotton growing in the Transkei Territory is essentially a proposition for natives, though some experiments have already been made by Europeans. The Transkei is a Native Reserve ; no land outside the township can be alienated to Europeans and "each family has 10 acres of arable land with pasture rights attached. The administration is most anxious to introduce some profitable cash crop, as the population is pressing heavily on the land."—(From the Keatinge Report, p. 35. John A. Hubcock, Rome.)

## COTTON PRODUCTION IN TANGANYIKA.

The following are the final figures, supplied by the Director of Agriculture, of the cotton production in Tanganyika Territory during last season, 1922-23. Their compilation has been delayed by the late ginning in the Mwanza district. The similar figures for the preceding season, 1921-22, are given for comparison :

(IN POUNDS)

District	1921-22	1922-23	Difference per cent.
Morogoro . . . . .	1,039,257	848,804	-19
Mwanza (including Shinyanga) . . . . .	322,080	1,160,685	+260
Rufiji . . . . .	320,927	269,493	-16
Lindi . . . . .	798,346	218,082	-73
Bagamoyo . . . . .	9,889	77,504	+725
Kilwa . . . . .	92,295	39,796	-57
Dar es Salaam . . . . .	348,694	152,080	-57
Moshi and Lushoto . . . . .	—	99,192	—
Pangani . . . . .	—	4,950	—
Total . . . . .	2,980,988	2,870,086	-2

This means an output of 7,327 bales of 400 lbs. for the former season, as against 7,175 similar bales for the latter.

## INCREASING PRODUCTION OF COTTON IN PARAGUAY.

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In a report on the general improvement in economic conditions in Paraguay which has recently been transmitted to Washington by United States Consul Harry Campbell, at Asunción, it is stated that great interest is now being shown in the production of cotton in that country, and, from the increase in production during the past year from a negligible quantity to an estimated crop of 3,000,000 to 4,000,000 lbs. of unginned cotton, it is apparent that it can be grown successfully in nearly all parts of Paraguay. The Government, through the Banco Agrícola as well as several private concerns, is distributing seed gratis, together with literature describing the requirements of cotton cultivation and the advantages of its production, and it is expected that the next crop may be several times larger than the production for the present year.—(*Economic World, N.Y.*)

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From another report received at our offices, it appears that three to four thousand tons, equal to 15 to 20,000 bales, of lint cotton are being grown this season in Paraguay and should be ready for shipment in April-May, 1924. It is stated that the climate is ideal and that there is no boll-weevil pest. Labour is cheap, but somewhat indolent.

Cotton growing is in its infancy in Paraguay and the Government, the "Banco Agrícola," newspapers and private firms interested in the purchase of the crop are energetically advocating the growing of cotton. It is stated that legislation for the proper classification and control of the kind of cotton to be grown, can be introduced. The Government already insists upon fumigating all seeds used for planting purposes and upon the burning of the cotton stalks after the harvest.

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## East Indian Cotton.

### INDIAN CENTRAL COTTON COMMITTEE.

**M**EMBERS of the International Cotton Federation will feel gratified in reading this account as they will be reminded that quite a number of the steps taken by the Indian Central Committee were suggested some ten years ago by the International Federation, as the three reports issued amply prove.

The sixth meeting of the Indian Central Cotton Committee was held at Bombay from the 4th to the 6th September, 1923, Dr. Clouston the Agricultural Adviser to the Government of India, presiding. At the first day's sitting the Committee discussed the regulation of gins and presses to deal with the abuses which, for many years, have spoiled the reputation of Indian cotton, caused economic loss to the country and loss of profits to the cotton grower. The following resolutions were passed :

(a) That the Government of India be asked to undertake legislation at an early date on the lines of the rough draft bill submitted by the Committee for the regulation of gins and presses and for the compulsory

marking of bales, maintenance of records of ownership and periodical statistical returns.

(b) The All-India Act should also include specific provision to ensure :

- (1) That only standard weights and correct scales shall be used in all ginning and pressing factories ;
- (2) The adequate paving or flooring of press-houses, and
- (3) That in all new ginning factories to be constructed after the passing of the Act separate entrances for *kapas* (seed cotton) and exits for ginned cottons should be provided and the plans of all new factories should be passed by a local authority which shall be the Provincial Cotton Committee (or where none exists, the Central Cotton Committee).

(c) The All-India Act should also include an enabling clause empowering Local Governments to introduce a system of licensing of ginning and pressing factories. This clause should only be operative if brought into effect by a notification approved by resolution of the Provincial Legislative Council.

(d) Rules under the Act should be made by the Government of India for the following matters :

- (1) The allotment of marks to pressing factories ;
- (2) Prescribing the manner in which the bales should be marked ;
- (3) Prescribing the method of publication of statistical returns.

All other rules should be made by the Local Governments concerned.

The next subject discussed was the question of open cotton markets which had been considered at several previous meetings of the Committee. The following resolutions were passed :

(a) That the Central Cotton Committee considers that open cotton markets on the Berar system should be introduced wherever possible throughout the major cotton growing tracts except where special local conditions render this undesirable or unnecessary for the present.

(b) That Local Governments should be recommended to undertake the provincial legislation which is necessary for the purpose.

(c) That for satisfactory working it is desirable that Market Committees should include direct representatives of cotton growers not less in number than half of the total.

The Local Sub-Committee whose report was adopted had examined the many details connected with this problem and it was decided that the substance of this report should be forwarded to all Local Governments. In the course of discussion it was shown that while there are certain portions of the cotton growing tracts where regulated markets may prove to be temporarily impracticable, there are many areas where greater facilities for cultivators to market their *kapas* are badly needed. It was shown that the Berar markets had been a distinct success. The principal amendment to the Berar rules proposed by the Central Cotton Committee was that providing for the adequate representation of cotton growers on the Market Committees.

After the discussion of certain details connected with the Punjab Research Scheme the Committee decided to undertake the necessary preliminary experimental work in connection with the fumigation of imported cotton to prevent the introduction of the American boll-weevil

into India. The amount of American cotton imported into India is relatively small and often nominal, but there is always the risk of the pest being introduced with baled cotton. The Committee advise that this should be safeguarded by insisting on fumigation at the ports of the country. These proposals have received the unanimous support of Chambers of Commerce and Mill Owners' Associations as it is already known that the fumigation can be carried out without any risk of damage to cotton while at the same time ensuring the destruction of any live weevils. Preliminary experiments will be undertaken with the object of ascertaining the best method of carrying out the fumigation and the safeguards necessary.

Information has been received that the Empire Cotton Growing Corporation had accepted the Committee's suggestion that the time had now come when the Corporation's previously expressed intention of appointing an Indian Sub-Committee in England to co-operate with the Indian Central Cotton Committee could be conveniently given effect to. This Sub-Committee had already met and considered several questions referred to them by the Indian Central Cotton Committee in connection with the better marketing of Indian cottons. The following resolutions were passed :

(1) That the Committee expresses its appreciation of the action of the Corporation in forming an Indian Sub-Committee, and of the attention which the Sub-Committee has given to the questions which they referred to it for consideration.

(2) That the Committee will be glad to co-operate with the Corporation and its Indian Sub-Committee to the fullest extent possible in promoting the better marketing of Indian cotton in Great Britain, but will await the further recommendations of the Corporation's Indian Sub-Committee in regard to details.

The Indian Central Cotton Committee considered a number of reports of the meetings of Provincial Cotton Committees. In the course of discussion various speakers emphasized the value of the detailed information contained in these reports and the increasing extent to which the Indian Central Cotton Committee must become dependent on such reports if it is adequately to perform the functions assigned to it in promoting the improvement of Indian cotton growing. The hope was expressed that Provincial Cotton Committees will, in future, meet still more frequently.

The following resolution was passed in connection with the recent notification of areas for protection under the Cotton Transport Act in the Bombay Presidency :

That the Central Cotton Committee record their appreciation of the action of the Government of Bombay in notifying the Surat-Navsari, Bijapur, Bhagalkot, and Kumta-Dharwar areas and recommend that the question of notifying a further area in the north Broach district be considered as soon as possible as this is necessary to complete the protection of the staple cotton growing areas of the Presidency.

On the 5th September the Indian Central Cotton Committee divided into Sub-Committees to discuss various matters of detail. Of these Sub-Committees the most important was that dealing with the selection of candidates for the Committee's Research Studentships.

Over a hundred applications were received, and many of the applicants were well qualified. Six studentships were awarded.

Four studentships were awarded to enable the students to study research methods as applied to cotton breeding, one for research on cotton diseases, and one in the Entomology of cotton pests. These students will now be posted to the various agricultural institutions which have offered them facilities for work.

Applications will again be considered in December for studentships which will be tenable from April, 1924.

The Central Cotton Committee at its resumed sitting discussed the possible remedies for the mixing of Punjab-American and *Desi* (indigenous) cottons.

The Vice-President in opening the discussion said that the features of the problem were unfortunately as simple as the remedy was difficult. It was clear that *Desi* and American cottons must both continue to be grown in the Punjab, and it is equally clear to those who are acquainted with cotton business in the Punjab that these cottons are not mixed to any great extent in the fields or by the growers, but are deliberately mixed in the ginneries, thereby causing economic loss to the growers whose cottons are not valued so high as they should be in the world's markets, and further loss not only to the growers but also to the whole province and to India, so that the seeds of the two varieties are becoming mixed and the crop in consequence deteriorating. All this was common knowledge and the difficulty was to find a remedy. He also referred to the growing importance of this cotton to the exporter as well as to Indian mills. Punjab-American cotton had been more used in Europe during the last two years than formerly owing to the shortage of the American crop. This was no small gain in helping to stabilize the cultivation of cottons of better staple, but the whole future of the crop was threatened by the malpractices which he feared were growing rapidly and would increase if not promptly dealt with.

The Punjab representatives present then put before the Committee details of the local conditions of the tract. The Committee also had before them the proceedings of the Punjab Provincial Cotton Committee, a special meeting of the ginning and pressing factory owners and of the Lower Bari Doab Canal Colony Agricultural Association, and their recommendations as to the causes of the evil. All possible alternatives for dealing with this problem were discussed, but the Committee finally came to the conclusion that the only hope of an immediate solution lay in taking full advantage of the Committee's own proposals for the regulation of gins and presses which had reached a final form at this meeting.

Discussion of the areas in which the protection of the Cotton Transport Act was needed was then resumed. With minor modifications which the further information placed before them showed to be desirable, the Committee endorsed the recommendation of the Central Provinces Provincial Cotton Committee that a Berar area and a Central Provinces area should be notified for protection.

The Committee then adopted the report of the Research Sub-Committee and of the Research Students Selection Sub-Committee the awards of which had already been announced. The reports of the Sub-Committees dealing with the Technological Research Institute were then taken into consideration. It was stated an excellent site had been secured at Matunga near the Victoria Jubilee Technical Institute. The acceptance of tenders for the necessary building was confirmed and a number of further details settled. (*Indian Trade Journal, September 13, 1923.*)

## COTTON GROWING IN INDIA.

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Sir George Lloyd, Governor of Bombay, started the world's greatest irrigation scheme when, in the presence of a large gathering of officials and prominent zemindars of Sind, he laid the foundation of what is to be known as the Lloyd Barrage at Sukkur.

The scheme consists of a barrage across the Indus and seven canals. The barrage itself will be a masonry structure five times the length of London Bridge, and will be in the form of a double bridge. The total area commanded by the whole system exceeds eight million acres, an area nearly twice the size of Wales. It is expected that the construction will be sufficiently advanced by May, 1929, to permit of the waters of the Indus being regulated and perennial irrigation standing in portions of the canal system. This part of the scheme is expected to be completed in all respects by 1931, and the canals of India distribution system by the summer of 1935.

The scheme will turn an arid desert into six million acres for the cultivation of cotton, rice, wheat, oil seeds, and jowari. This exceeds the cultivation of the whole of Egypt. The scheme will cost £12,000,000.

In 1910, as a result of the visit of the Secretary of the International Cotton Federation, a deputation waited upon the Secretary of State for India in London recommending amongst other items the construction of the above barrage as a means of extending cotton growing in India.

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## COTTON GROWING IN SPAIN.

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According to a Reuter's message, the Military Directorate has voted a credit of 10 million pesetas (to-day about £33,000) for the purpose of stimulating the cultivation of cotton in Spain. The credit will be spread over five years at the rate of two million pesetas per annum. Emphasis has recently been made by its President on the need for the country to become self-supporting in regard to the supplies of raw material in general and cotton in particular.

The textile industry provides employment for over 300,000 persons, and is one of the most important in Spain. Experiments carried out in the country prove that the climatic conditions and the soil are favourable, and during the war with the United States, when supplies were cut off, cotton was actually produced in Spain to a considerable extent.

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## HOW FAST SHOULD GIN SAWS BE RUN?

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John H. McDonough, president of the Murray Co., Dallas, Texas, contributes to the October 24 issue of *Commerce and Finance* the following statement :

"The real secret of making a good sample with a cotton gin is to run with as loose roll as possible. With a slow speed saw you cannot run with a loose roll and clean the seed properly.

"A popular idea is that high speed gin saws will nap or gin-cut the cotton. This is not true if the lint is promptly removed from the saw and not allowed to pass through the roll and gin ribs a second time and provided the gin is operated with a loose roll, which is possible only with high speed saws.

" You will understand that in brush gins the speed of the saw is limited by the ability of the brush to remove the lint from the saws. *With brushes in bad condition, the saws must, of course, be run very slowly.* With brushes in the very best of condition it has been found that about 380 revolutions per minute for 12 in. and 400 revolutions per minute for 10 in. saws is the maximum speed, for it will be remembered that the peripheral speed of the brush must be approximately four times that of the saws, which means that with the saws running 380 to 400 the brushes must run about 1,600 revolutions per minute.

" Now a gin brush is rather a delicate piece of mechanism and no manufacturer has been able to build a brush that will hold up for any great time under a speed much in excess of 1,600. It is important, as you will readily see, for the ginner to keep his brushes at all times in the best possible condition, if he uses brush gins.

" Where the air-blast gin is used it is possible and is becoming common practice to run the saws at a much higher speed than they can be run in brush gins. In the air-blast gin a much greater volume of air is applied to the gin saws for removing the lint and at much higher velocity than is possible with brush gins. In brush gins it is air that removes the lint from the saws. It has been found that the brushes when running at anything like full speed do not touch the gin saws and it is air, after all, that removes the lint from the saws.

" Where an air-blast gin is so constructed that the motes can be properly taken care of it is possible and good practice to run the saws at a speed of 700 revolutions per minute. In fact all air-blast gins put out by us for several years have been speeded 700 and we have never had such good results at any other speed.

" With a slow speed saw in the gin, it is necessary to carry a tight or dense roll in order to clean the seed properly and a tight roll means napped or gin-cut cotton. With gin saws running as fast as 700 revolutions per minute it is possible to carry a very loose roll and at the same time clean the seed well, making a better sample and a much greater turn out."

It will, however, be found that gin brushes are generally worn out, especially in Brazil and other countries where repairs cannot be readily carried out. It is for this reason that in many cases "to run the gins slow" is sound advice, with which Mr. McDonough agrees. The air-blast system has, of course, great advantages over the brush arrangement.

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## COTTON GROWING IN CHINA.

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We published on pages 438 to 440, Vol. I, an extract from the *Indian Trade Journal* stating that valuable experiments for improving Chinese cotton varieties and acclimatizing American cotton are being carried out by the University of Nanking and that these activities have been encouraged by the generous support of the Cotton Millowners' Association of China (largely British) and the Shanghai Cotton Anti-Adulteration Association. The National South-Eastern University of Nanking informs us that the Chinese Cotton Millowners' Association, which is an active member of the International Cotton Federation, entirely composed of Chinese millowners, takes the principal part in the co-operation with the University and is providing a larger sum for the work of cotton improve-

ment and extension than the other organization mentioned. The Chinese Cotton Millowners' Association contributes annually \$28,000.

At the present time these various organizations have created nine experimental stations in Kiangsu, Honan, Hupeh and Chihli and plans are being worked out for an extension in the near future. The College has prepared the following programme, which will soon be executed:

Experimental stations will be established in the 10 cotton-producing Provinces, namely, Chihli, Shantung, Shansi, Shensi, Honan, Kiangsu, Anhwei, Chekiang, Kiangsi and Hupeh. There are 18 sections in these 10 Provinces where cotton improvement work is feasible. In each section, a central experiment station, comprising not less than 500 mows (1 mow equals one-sixth acre) is to be established. There will also be in each section at least 20 seed farms, each comprising not less than 100 mows, subordinate to the central experiment station. Activities may be considered under two headings: Research and Extension. The research work consists of breeding, cultivation, prevention and control of insects and diseases, and improvement of implements. The experimental stations and seed farms will be devoted to the extension work, the chief items of which are to multiply the improved seeds, to improve the agricultural methods, the improvement of other crops, demonstrative lectures, exhibitions on cotton culture, and distribution of information on rational methods of cotton growing.

The Committee considers that an annual fund of \$460,000 would be enough to carry out the entire plan.

The Chinese Cotton Millowners' Association has organized a committee to supervise the work of the College. Mr. Moh, manager of three well-known large mills, has been elected the Chairman of this committee; this gentleman has the special qualification of a M.Sc. degree which he took at the Texas University some 10 years ago in cotton cultivation and during three years he had his own experimental farm near Shanghai for the purpose of acclimatizing American cotton and improving Chinese varieties.

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## THE OUTLOOK FOR THE PRESENT SEASON'S COTTON CROP IN CHINA.

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China's cotton crop for this year will be slightly larger than last year's crop, according to a cable received last week by the Departments of Agriculture and Commerce from the United States Trade Commissioner at Shanghai. The increase is attributed to larger acreage and very favourable late growing weather. Estimates from various unofficial sources place China's normal cotton crop at about four million bales. However, a large portion of the crop is used for home consumption and does not enter commercial channels. The Chinese Mill Owners' Association estimated last year's crop in the principal cotton growing area, where most of the commercial crop is produced, to be about two million bales of 478 lbs. nett.

Chinese cotton mills consumed 1,609,000 running bales of cotton during the year 1922-1923, according to the report of the International Federation of Master Cotton Spinners. About 30 per cent. of this cotton was imported from India and America. American cotton consumed in China during 1922-1923 totalled 110,000 bales.

—(*The Economic World*, N.Y.)

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## COTTON CULTIVATION ENCOURAGED IN ARGENTINA.

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Cultivation of cotton is the subject of vigorous propaganda which is being spread throughout Argentina by its Ministry of Agriculture, states a Consular Report from Buenos Aires, dated September 10, 1923. It is pointed out that Argentina has large tracts of land still uncultivated which are especially suitable for cotton growing. Immigration, which will furnish the labour supply, is increasing. It is reported that in some sections of the country much enthusiasm has been aroused in favour of cotton cultivation and that many applications have been sent in for cotton seed which the Ministry of Agriculture is offering gratis for planting of small areas.—(*U.S.A. Government Report, Foreign Crops and Markets.*)

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## COTTON AREA INCREASED IN RUSSIA.

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Area sown to cotton appears to have been increased in Trans-Caucasia and Khiva according to a report, based on unofficial information, from American Minister F. W. B. Coleman at Riga, dated September 13. Turkestan seems to offer little promise of development in cotton cultivation owing to general discontent, poverty and the deprivations of "Basmachi" (Mohammedan irregulars under Turkish leadership), states the report.

The main cotton growing area in Trans-Caucasia is Azerbaijan where, up to the war, 63 per cent. of the total area was devoted to cotton. Since the war the Soviet authorities have tried to revive cotton growing in Azerbaijan but without success until 1923 as the peasant was not sure of being able to sell his cotton. To assure the peasants of support in the enterprise the Soviet authorities worked out a plan, according to which the peasants were given a certain amount of money for each dessiatine planted and was guaranteed a price of four gold roubles for each pood of cotton produced. As a consequence, 35,000 acres were planted to cotton in Azerbaijan. Added to this area there were 11,000 acres planted in Armenia, 1,000 acres in Georgia, and 18,000 acres planted by the Supreme Cotton Committee in Azerbaijan totalling for Trans-Caucasia an area which is about one-sixth of the area cultivated for cotton in 1914. It is expected that the crop will yield about 22,000 bales of 478 lbs. net, which is about 12 per cent. of the crop expected for Turkestan, Bokhara and Khiva.

Future possibilities for cotton growing are more encouraging in Trans-Caucasia than in Turkestan. About 1,200,000 acres could be utilized in Azerbaijan, as compared with 53,000 acres for this year, provided the irrigation system can be restored.—(*U.S.A. Government Reports, Foreign Crops and Markets.*)

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## WORLD'S COTTON PRODUCTION.

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The International Institute, Rome, states that although cotton is grown in a large number of countries, the production of the United States of America, British India, Egypt and Brazil (the latter ranking within a very short period among the chief producing countries) represents nearly the

whole ascertained world yield. The following table shows the yield of these four countries for the years 1909-10, 1913-14 and 1922-23:

Countries	AREA (in millions of hectares)		PRODUCTION (in millions of quintals)	
	1909-10/1913-14	1922-23	1909-10/1913-14	1922-23
United States .. ..	18.8	13.4	28.3	21.6
British India .. ..	9.1	8.5	7.8	9.4
Egypt .. ..	0.7	0.8	3.1	2.2
Brazil .. ..	0.2	0.6	0.6	1.2
Other countries .. ..	0.8	0.6	2.3	1.4
Totals .. ..	24.6	23.9	42.1	35.8

As regards the four principal cotton-producing countries, it should be remembered that, as a result of the reduction in the North American and Egyptian crops and the increase in Indian and Brazilian production, British India and Brazil are becoming increasingly important as contrasted with the United States and Egypt. The Brazilian crop largely counter-balances that of Russia in Asia, which ranks in the group of other countries with an average of 460,000 hectares under cultivation and a yield of 1,300,000 quintals for the period 1909-10 to 1913-14, and much lower figures for the following years. In considering this group attention may be drawn to the marked development of cotton growing in Korea, Uganda and several African colonies and the rapid advance of Australia, where the experimental phase has been brought to a successful close, and cotton growing has been started on a considerable scale.

## THE WORLD'S COTTON PRODUCTION.

(See also table in statistical section of this issue)  
(as published in the "Boletim Algodoero, S. Paulo")

Country	Production in bales of 478 lbs. nett			
	Yearly average from 1909-10 to 1913-14 bales	1920-21 bales	1921-22 bales	1922-23 bales
NORTHERN HEMISPHERE :				
United States .. ..	13,083,283	13,439,603	7,933,641	9,964,000
Mexico .. ..	193,000	188,000	126,000	120,000
CENTRAL AND SOUTH AMERICA AND WEST INDIES :				
Guatemala .. ..	144	--	--	--
Dutch West Indies .. ..	161	202	43	--
Haiti ..	8,792	--	--	--
Republic of Dominica ..	1,166	150	--	--
Porto Rico .. ..	1,319	1,400	920	--
Santa Cruz (Virgin Islands) ..	519	61	--	--
British W. Indies { Antigua ..	246	79	--	--
Monserrat ..	657	826	732	--
St. Kitts-Nevis .. ..	1,347	1,615	732	--
Grenada .. ..	703	688	--	--
Santa Lucia .. ..	15	12	--	--
St. Vincent .. ..	1,026	1,363	528	--
Bahamas .. ..	24	--	--	--
Barbados .. ..	1,061	--	--	--
Jamaica .. ..	71	--	--	--
Trinidad and Tobago .. ..	16	--	--	--
Virgin Island .. ..	81	--	--	--
Guadelupe .. ..	--	--	--	--

[Continued on next page.]

## THE WORLD'S COTTON PRODUCTION—Continued.

Country	Yearly average from 1909-10 to 1913-14 bales	Production in bales of 478 lb., nett.		
		1920-21 bales	1921-22 bales	1922-23 bales
<b>EUROPE :</b>				
Italy ..	—	—	—	—
Yugo-Slavia ..	—	273	266	—
Greece ..	13,000	—	—	—
Bulgaria ..	842	1,212	1,841	—
Malta ..	433	240	488	—
Russia in Europe (Northern Caucasus) ..	680	—	—	—
Turkey in Europe ..	10,000	—	—	—
<b>AFRICA :</b>				
Algiers ..	572	356	293	293
Dahomey ..	664	1,932	—	—
French Guinée ..	280	—	—	—
Ivory Coast ..	28	94	—	—
French Sudan ..	235	—	—	—
French Togo ..	—	4,300	4,600	—
Italian Somaliland ..	510	—	—	—
Erythréa ..	980	—	—	—
Egypt ..	1,458,000	1,251,000	684,000	1,015,000
Anglo-Egyptian Sudan ..	13,000	23,000	20,000	—
Gold Coast ..	39	40	—	—
Kenya ..	519	111	192	—
Nigeria ..	9,000	26,000	2,000	—
Seychelles ..	18	—	—	—
Uganda ..	20,000	63,000	31,000	—
Togo (German previous to war) ..	2,312	—	—	—
<b>ASIA :</b>				
Cyprus ..	1,983	2,024	1,446	—
Turkey in Asia ..	133,000	—	—	—
India, British ..	—	—	—	—
India, Native States ..	—	—	—	—
Ceylon ..	—	—	—	—
Asiatic Russia ..	953,000	115,000	100,000	50,000
Persia ..	111,485	—	—	—
China ..	—	1,883,000	1,517,000	—
Japan ..	4,704	4,784	—	—
Korea ..	25,006	111,110	92,418	83,397
French Indo-China ..	9,000	6,000	—	—
Siam ..	—	—	—	—
<b>OCEANIA :</b>				
Hawaii ..	12	—	—	—
North Borneo ..	125	—	—	—
<b>SOUTHERN HEMISPHERE :</b>				
Peru ..	110,000	164,000	157,000	—
Chile ..	247	—	—	—
Brazil ..	322,000	451,000	612,000	—
Paraguay ..	1,400	1,500	—	—
Argentina ..	3,000	28,000	—	—
Belgian Congo ..	—	8,000	5,000	—
Tanganyika ..	6,853	2,402	6,000	—
Nyassaland ..	8,800	1,600	2,900	—
Union of South Africa ..	76	1,670	2,000	—
Angola ..	428	—	—	—
Mozambique ..	280	907	—	—
Dutch East Indies ..	18,981	—	—	—
French Colonies in Oceania ..	168	—	—	—
New Hebrides ..	303	3,606	—	—
Australia (Queensland) ..	91	640	2,500	—
Fiji Islands ..	4	—	—	—
Papua ..	90	—	—	—
Salomon Islands ..	23	—	—	—



## The 48-hour Week and Trade Unionism in U.S.A.

**I**N an address before the Rhode Island Purchasing Agents' Association, Providence, Mr. E. Howard Bennett, of the *American Wool and Cotton Reporter*, who is regarded as an authority on labour conditions, after pointing out the large mill extensions that are going on in the South, expressed himself as follows :

"The eight-hour day, and this presupposes a 48-hour week, is about the best advertised commodity in the U.S.A. It has had a tremendous propaganda and consequently a lot of people believe that eight hours is enough to work in any one day. Why should a day's work be limited to eight hours? Why should there be any law for compulsory idleness?—and that is what a 48-hour law is. If the eight-hour day is a fair proposition, why not say that it means eight hours a day for seven days in the week, a total of 56 hours in the week and then let us work the 56 hours in six days ?

"Now it may be that 48 hours is ideal. I don't believe it and no proof has ever been brought forth to bear out the contention that eight hours of labour in any one day is sufficient. I do know this, namely, that all housewives work more than eight hours a day and more than 48 hours a week. I do know that any farmer would starve to death if he limited his work or the work of his helpers to 48 hours a week. I know that the fisherman going out of Boston or Nantucket or Cuttyhunk, who supply a large portion of our food, work days, nights, Sundays and holidays and that they are not limited to 48 hours a week. None of the great agricultural or fishing industries, upon whom we are dependent for our food supplies, are limited in hours of labour. You and I can work as many or as few hours as we want to and our earnings depend upon our hours of labour plus our application and ability. No great individual success was ever made in a 48-hour week.

"I have here a copy of *The Textile Worker*, the official organ of the United Textile Workers of America, that is, the organ of the Textile Union who promoted and prolonged the textile strike here in Rhode Island last year. In this magazine it is pointed out that Samuel Gompers works days and nights and Sundays and that he doesn't get time-and-a-half for overtime. In this magazine it is pointed out, at least it is claimed, that the organizers of the Textile Unions work days, nights and Sundays. In this magazine it is pointed out that the strike leaders here in Rhode

Island last year worked days, nights, holidays and Sundays. You wouldn't employ a doctor who limited his practice to 48 hours a week. You wouldn't have any faith in a minister of the gospel who refused to comfort the sick or visit the dying beyond 48 hours a week. You wouldn't—having sickness in your home—have anything to do with a trained nurse who would only work 48 hours a week.

" All the women of the world in their family duties, and that means half the workers of the world ; all of the farmers, the providers of all our animal and vegetable food products, all of the fishermen, all of the professional men, the doctors, the nurses, none of them are limited to 48 or even 54 hours a week. Why then should a favoured few, the shoemakers, the plasterers, and the cotton weavers, be given a living at high wages—at higher wages than most of us can afford—for working at easier tasks and for less hours than any of the important workers named above ?

" The 48-hour question is not a political one, it is a serious economic proposition. Don't let anybody mislead you into believing that a cotton mill or a shoe factory can produce as much goods in 48 hours as it can in 54 hours. A Draper loom will run 155 or 160 picks a minute. You can't make it work any faster. If your mill operates 54 hours a week, a Draper loom will run 160 picks a minute. If your mill runs 48 hours a week, a Draper loom will run 160 picks a minute. If you cut the hours of operation from 54 hours to 48 hours, you will cut the production more than 11 per cent., and there will of necessity follow an increase in the cost of the goods and not a corresponding but enlarged increase in the cost of the finished product to you and to me and to all the other customers.

" I personally have no patience with the talk of a national 48-hour law. I do not believe it was ever meant that an able-bodied man or an able-bodied woman should only work 48 hours in a week. I don't want to see the United States have a national 48-hour law. I want the United States as an industrial nation to produce so much goods at such low cost figures that we can dominate the business of the world—and we never can do it under this restrictive legislation. But considering Rhode Island alone or New England alone, so far as the 48-hour law is concerned, let us bear in mind that there is only one industrial State in the Union that has a 48-hour law, namely, Massachusetts. No other industrial State has it. Maine, New Hampshire, Vermont, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, are 54-hour States, the Southern States are 55-hours to 60-hours or without any limit.

" What is the trouble with the industry in New England ? You have no fault to find with the organizing of labour, or with labour unions from a theoretical or ideal standpoint. Of course the operatives have a right to organize, and they ought to be urged to organize. It would be a wonderful thing for the operatives individually and for the industry and for the country if all the workers of the country could be organized and taught that increased production means increased wages, that increased production means lower cost of goods, hence a lower cost of living. But labour leaders to-day are not teaching any such thing as that. In this official magazine of the Textile Union that I hold here in my hand, the first reading paragraph says : ' Don't forget that organization increases wages and shortens the working day, making work steadier.'

" That doesn't mean a single, solitary thing except that organization

increases wages, decreases production, makes more jobs for more men ; it means that present-day organization promotes laying down on the job. What kind of labour leaders has the Textile Union here in New England ?

" At the annual convention of the United Textile Workers of America, held last year in Fall River in September, the president of the International Union, Mr. Thomas F. McMahon, said : ' We shall continue to agitate for the 48-hour week, but what we are really after is the 44-hour week. Are you in favour of the 44-hour week ? If not, you have got to resist these labour leaders, and you have got to personally tell your Senators and Legislators that you are against the 48-hour week.

" I own a little stock in a New England cotton mill where the weavers are running 32 looms. One old lady has 34 looms and she is as jealous of those 34 looms as you can possibly be of your good name. In other places in the mill the operations have been doubled up and the mill is saving something like \$60,000 a year. It is no hardship on the operatives. They earn much more money and they like it, but the management of the mill does not dare give this feature any publicity for fear the labour leaders would come down and make trouble. What the labour leaders want the mill to do is to run 10 and 12 looms to a weaver instead of 32. In another New England mill with which I am familiar, after the strike of last year, the mill started up with 265 less operatives than were employed before. In this mill the weavers used to tend 16 looms. Now they are tending 32. A lot of spare hands have been done away with and more than \$320,000 a year in wages is being saved, more than 8 per cent. on \$4,000,000. But the management of this mill is fearful of giving this condition any publicity for fear that the labour leaders will come up there and make trouble.

" The labour unions will not gain any foothold in the South. In the last issue of *The Textile Worker*—the official magazine of the Union which I have in my hand—the president says that the great test is now coming in the South and that, ' As I write these words,' says President McMahon, ' the strike is starting in North Carolina and it will probably spread all over the South.' What happened :—A strike was called in Charlotte, N.C., on Tuesday and it lasted just four days. On the fourth day it was all over. The labour unions cannot gain a foothold in the South because the operatives themselves are well paid, contented, ambitious and averse to the introduction of present union labour tactics.

" A young fellow came in to see me the other day who has been weaving in one of the big piece dye worsted mills of the country. He has been running four looms. That is all the looms that the labour union will allow the management to give to each weaver, but this young man told me that he could tend eight looms easily. The whole effort of the Textile Union, and of all other unions so far as my knowledge goes, is to cut down production, cut down the work of each operative, spread the work over a longer period, increase the wages and increase the cost. Here in New England the average number of looms on cotton goods runs from four to twenty. In the South, the average is from 10 to 40. I am very familiar with a mill in South Carolina, where each weaver operates 40 looms on fine lawns. In your own Rhode Island mills, the weavers probably do not exceed 16 or 18 looms on this same class of goods. Here in New England, the spinners tend four, six and eight sides of spinning. Down South the spinners on the same yarns tend 10 and 12 sides of spinning."

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## Lancashire Operatives' Reply to Preceding Article.

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(Reprint from "The Cotton Factory Times," October 26, 1923.)

WHEN the Northrop looms came into being many years ago doleful prognostications were voiced to the effect that the days of the ordinary power-loom were numbered, and that hundreds of weavers would find their services no longer necessary. Both predictions have been proved to be baseless. The Northrop has not made headway, in the real sense of the term, in this country; neither has it displaced the ordinary loom. First thoughts would suggest that the Northrop looms were not idle, and that a slump in trade would scarcely affect them. That, however, has proved to be a wrong impression, for we find Northrop looms in Lancashire and Cheshire are victims of the trade slump just as much as are the ordinary looms. Many of them are stopped. From America (the land of sensations and boostings) we are receiving another dose of "mighty things" in the way of the further possibilities of the looms they have over there. The *American Wool and Cotton Reporter* (not an operatives' publication, by the way) states there is a large New Hampshire mill where the weavers are running 32 looms in place of the previous 16, and that they like it because they are earning more money. These are looms, it is stated, up to 60 in. in width. When this policy of an increased number of looms per weaver was put into effect, continues the report, the old personnel of this particular mill was gone over, and about 250 needless employees were discharged by the doubling up of the work with increased wages, so that to-day the mill is saving in pay-roll alone about 325,000 dollars a year. That is the story vouched for by the employers themselves. A fortnight ago Lord Leverhulme said: "There was a general idea that if a man did the work of two men he was throwing another man out of employment, and that if two men could absorb the work that ought to be done by one, the belief was that employment was being created." We could call that policy by any name we liked, added Lord Leverhulme, ca-canny, or anything else, but it was a mistaken policy. We venture to suggest that Lord Leverhulme take a hurried trip to New Hampshire and explain to those "250 needless employés" who have been discharged—pitched into the street—as the result of changes such as he described, that the incident has been beneficial to them, and that they ought to be duly and profoundly thankful—even though they be starving. We should like his lordship's considered view on the case here described.

The report further tells us that the owners of a similar mill in the State of Maine, profiting by this good example, are operating 32 and 34 looms to the weaver. Another New England mill, a 48-hour mill, is running up to 48 looms per weaver on fine goods—and the weavers like it. This had been a 12 loom job, proceeds the wonderful story, on automatic looms. We are left wondering what manner of looms the "32, 34 and 48" can be if the weavers can operate three and four times the number of "automatic" looms. Assuming the "automatic" is equal to three or four "ordinary" looms, we get the astounding result that a weaver tending those "48" looms is now equalling the efforts of the weavers on about

50 of the ordinary power looms ; in other words, one weaver is now doing as much work on the latest machines as 12 weavers do on the ordinary looms. The report gets more candid (even if a bit blood-thirsty) as it goes on its way reciting the achievements of this marvellous loom. No sudden radical change, it tells us, was made, but one weaver who had been running 12 looms was asked to try 20 looms, then 28, then 32, then finally 48 looms. Isn't it remarkable ! It leaves us wondering why the halt was called at 48—why should not the weaver have taken on the whole shed, and also have done a bit of clothlooking, tackling, weft distributing and general labouring in his spare time ? He made more money and bragged about it, says the writer of the story, as was natural, and soon other weavers asked for more looms, so that to-day more than one thousand looms are running on this basis with from 32 to 48 looms per weaver. We will not ask Lord Leverhulme to speculate on the veracity of the items in this miraculous piece of industrial history, but we should like his comments on the "gleeful" way in which they pitched out the "needless" weavers and evinced not a moment's uneasiness as to their future welfare. We suppose some kind capitalist who may come across the "needless" weavers wandering by the wayside, lounging at street corners, queueing up at Labour Exchanges, will insult them by accusing them of "ca-canny" and insinuating that they "want no work." In a very serious vein we want to say that we know that insidious, brutal, soulless game of "tempting" weavers to take on additional looms, setting weaver against weaver, and all the paraphernalia of scientific "driving," and we say that it is a curse both to the employers and employed.

The writer of the "glorification" in question has tried to prove too much. We have no hesitation in asserting the weavers could not humanly do what he describes without additional help, and he does not mention any help at all. If the only way to increase a weaver's wage is by giving him 50 per cent. more work to do at an increased total wage of 10 per cent., it needs no genius to devise that. It is bare-faced robbery. The president of the Textile Workers of America, Mr. Thomas F. McMahon, has something to say on this case in *The Textile Worker* for September. "We are told," he says, "that the introduction of new machinery has been helpful to the worker, but I, for one, fail to see it. The benefits have all flown into the coffers of the employers. It is only necessary to mention a fact that cannot be disputed, that the old eight-loom cotton weaver, running 110 picks per minute, and receiving nine and ten dollars per week, was better off than the full fledged racehorse weaver of to-day, who in some cases, according to *The Cotton and Wool Reporter*, operates 30 to 40 automatic looms, and, to my knowledge, receives in some cases less than 20 dollars per week." Mr. McMahon puts the case simply and clearly. His statement also enables us justly to estimate the difference in conditions between American and Lancashire methods of manufacturing. It will be noticed he refers to "the old eight-loom cotton weaver, running 110 picks per minute." Eight of such looms to a weaver is unusual here, three to five being the more common thing ; but our looms would be running 180 to 200 picks per minute. Therein lies the difference. Which is the best method we leave employers and weavers to decide. We do think sometimes we have too much speed in Lancashire. Going back to the story recounted in *The American Wool and Cotton Reporter*, we have to confess there seems a flaw in figures and logic somewhere. On the old 12-loom basis, says the writer, the production averaged

82 per cent. When the change was made to the increased number of looms per weaver it was decided to pay 10 per cent. more per cut and figure on an 85 per cent. instead of an 82 per cent. production. All the bosses were " schooled " to boost up the production and " it jumped not to 85 per cent., but to 95 per cent. on the 32 to 48 loom basis." If the piece rate was increased 10 per cent. (as implied), where did the saving of 325,000 dollars a year in pay roll alone come in? It is implied that a higher piece rate was paid, and the only benefit was a 95 per cent. production as against an 82 per cent., therefore it is difficult to discover where the production was actually cheapened or why it was necessary to dismiss 250 needless employees. If anyone told us that a weaver taking on 48 looms in place of 12 (with exactly similar conditions) increased at the same time the production per loom from 82 per cent. to 95 per cent. we should use strong language to them.

In one of the mills, we are told, the looms run through the noon hour, so that while the mill is on the 48 hours basis it actually, so far as the weaving is concerned, runs 54 hours, and while the weavers work 48 hours they get paid on the per cent. basis for 54 hours. Which, we add, is nonsense. The writer talks as if they had given the weavers something instead of having taken something from them. It is only fair to mention that the author of the article seems to have a fear that people will think he is a sort of Munchausen, for he sums up with the emphatic declaration that " These are facts, and we will be glad to name to interested manufacturers the mills referred to above."

## COTTON HOURS AND WAGES IN UNITED STATES.

The U.S.A. Government has just issued a report of an inquiry into the hours and wages of cotton operatives of all classes. The results were based on data from 62,833 wage earners employed in 97 representative establishments located in 12 States in 1922. Since 1907 there has been a diminution of hours worked in all sections, but there is still a fair amount of irregularity, or, put in other words, a varying number of hours per week. The 48-hour week is by no means universal. Last year the average weekly hours of the different workers may be summed up in the following manner :

OCCUPATION	HOURS	OCCUPATION	HOURS
Drawing frame tenter --Male ..	53·8	Spinner (frame)--Male ..	53·4
Female ..	51·5	Female ..	52·6
Slubber tenter-- Male ..	53·5	Dofler--Male ..	53·5
Female ..	50·1	Female ..	50·9
Speed tenter-- Male ..	54·1	Warp tenter--Male ..	55·9
Female..	51·0	Female ..	51·8
Spinner (mule) ..	50·0	Weaver-- Male ..	52·6
		Female ..	51·6

Other workers could be included in the list, but the above are the principal operative groups. Whether the hours given include overtime we do not know, but examining them as presented in a more detailed form we find that most of the operatives worked a week of 54 hours or over prior to 1920, and that even last year (1922) there was still a larger number on 54 hours and over than on 48 hours and under.

There appears to be no uniformity, as in England, where the 48-hour week is applied to all cotton mills. In fact, in the cotton mills of the United States in 1922 over 28,000 out of the returns from 62,833 operatives were engaged for over 54 hours a week.

From the returns we have made up the following table of average weekly wages :

OCCUPATION		AVERAGE FULL TIME EARNINGS	AVERAGE EARNINGS RECEIVED
Picker tenter—Male	.. ..	16·20	\$13·15
Card tenter and stripper—Male	.. ..	17·39	15·32
Card grinder—Male	.. ..	22·43	21·89
Drawing frame tenter—Male	.. ..	14·53	12·14
	Female ..	14·21	12·79
Slubber tenter—Male	.. ..	20·87	18·63
	Female ..	19·44	18·08
Speed tenter—Male	.. ..	19·87	16·36
	Female ..	18·82	17·20
Spinner (mule)—Male	.. ..	31·90	30·68
Spinner (frame)—Male	.. ..	15·59	12·48
	Female ..	15·83	13·22
Dofter—Male	.. ..	16·49	14·95
	Female ..	13·91	11·84
Creeler and tyer-in—Male	.. ..	16·90	15·34
	Female ..	12·83	11·10
Warper tender—Male	.. ..	19·73	17·98
	Female ..	18·03	16·26
Beamer—Male	.. ..	27·38	25·37
	Female ..	19·42	17·82
Slasher—Male	.. ..	22·43	21·69
Drawer-in—Female	.. ..	18·23	16·04
Warp-tyeing machine tender—Male	.. ..	22·48	22·18
Loom fixer—Male	.. ..	26·45	23·01
Trimmer and inspector—Male	.. ..	13·68	12·44
	Female ..	12·92	11·08
*Weaver—Male	.. ..	40·88*	35·02*
	Female ..	39·18*	34·44*
Other employees—Male	.. ..	12·92	11·68
	Female ..	15·58	14·20

\* Weavers earnings are for a two-week period.

The figures given above represent the average earnings of all the States. Mule spinners are the best paid in Massachusetts with over 36 dollars a week. (*Textile Mercury, Manchester, 27th October, 1923.*)

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## “A STUDY OF THE COTTON INDUSTRY NORTH AND SOUTH.”

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A pamphlet by Ashmun Brown, the Washington Correspondent of *The Province Journal*, is a recent investigation of the cotton textile industry in the two American strongholds on broad lines, for the purpose of obtaining facts in an open-minded and dispassionate manner. The author comes to the conclusion that the increased hours of labour are the chief advantage of the South over New England and quotes under this heading the following : “The Southern manufacturer got 79½ more hours’ work out of each of his active spindles than the New England manufacturer did, or about 40 per cent. more.

“For direct comparison’s sake, the figures for Rhode Island and North Carolina may be taken. In April, Rhode Island had 2,875,726 spindles

in place, of which only 2,740,939 were active, while North Carolina had 5,449,661 in place and 5,383,577 active.

"The Rhode Island active spindles averaged 218 hours' work during April—the highest in New England—Connecticut and Maine being next with 206 hours each; Massachusetts fourth with 178 hours and New Hampshire last with 177.

"But the average for North Carolina was 306 hours, or 88 hours more than Rhode Island.

"Alabama's average was 281; Georgia's, 297; South Carolina's, 296; Tennessee's, 249, and Virginia's, 229."

The following excerpts from the pamphlet dealing with other points at issue may interest the cotton manufacturers:

"The mills in North Carolina are now operated to the extent of 4 per cent. to 5 per cent. by Northern investors and from 94 per cent. to 95 per cent. by North Carolinians. North Carolina mills as a rule are small. Their ownership is widely diffused through the State. Less outside capital than might be imagined is required because North Carolina is the second richest State in the South.

"It is shown that the figure of power costs, to say the least, does not constitute a controlling factor in deciding whether to move to the South or expand in the North. Rates for power in the South are not materially lower than those prevailing in the North. Thus the slight difference in a cost item that amounts only to 2½ per cent. of the total costs is not worthy of large consideration.

"Another fiction that is widely circulated is that the Southern mill has a great advantage because it lies near the cotton fields. Investigation shows on the contrary, that the mills at Greenville, S.C. pay practically the same amount of freight on raw cotton that is paid by New England mills manufacturing the same kind of products. The Greenville mills are among the largest producers of fancy dress goods in the South. The use of so-called 'back door cotton' direct from the field is a minute part of the whole.

"The younger generation of mill workers in the North and in the South, in appearance, manner and taste are growing more and more alike. Girl mill workers, in fact, in many instances, appear to be standardizing themselves on the flapper model. In Gastonia, N.C., Manchester, N.H., and Woonsocket, R.I., to name merely a few instances, it was noted that the ankles of typical mill girls displayed the same quality of silk stockings. Among mill workers in those three places, when they were off duty were observed precisely the same sort of long slinky skirts, red heeled shoes and King Tut garments. Truly, they are 'sisters under their skins.'

"Talk long with a Southern manufacturer and sooner or later he will reveal what he regards as the weaknesses of his position and the strength of the New Englander. The things under which the aggressive Southerner chafes are these:

"'When,' explained one of the soundest cotton men of the South to the writer, 'the mills of Fall River, Mass., find the market in such shape that they cannot make any money in manufacturing goods even to put on the shelves, they can close and their people can take a chance of finding temporary employment in other lines. On the other hand, if we close, the entire population of our village is without revenue. There are no other industries in the vicinity to give them temporary

work ; nothing they can do. If we remain idle long, they will scatter. As you must have observed, we cannot afford to let this happen. The very existence of our mills depends on our holding the labour we have. That is why we are spending so much money and effort in improving living conditions in our villages. The result is that when depression exists we take orders actually at a loss in order to keep the mill running even part time. We have to do it.'

Other disadvantages of the South over the North are :

" That still too much of his grey cloths must be sent North for finishing.

" That the New England mills are nearer to and in closer touch with the great markets, and so get lower freight rates for their products.

" That the New England mills are nearer to and in closer touch with the financial market. ' If you are going to try to overcome natural advantages ' said a Southern mill president, ' by enacting a national eight-hour day law, let us try to legislate to make the big Northern bankers lend us money on as low terms as they grant to the people they know in their immediate vicinity of New England.'

" Installation of new spindles is proceeding in the South in this year of 1923 at a rate which indicates that by December 31 next, between 800,000 and 823,000 will have been added to last year's number. In New England the number of new spindles being installed is negligible ; not even the rate of normal renewals being maintained."

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## DEVELOPMENT OF COTTON MANUFACTURING IN THE UNITED STATES.

Recent purchase of Southern mills by New England interests and more especially the actual transfer of complete mill equipment from the North to the South have emphasized the acceleration of a movement which has been under way since at least the beginning of the century. The tendency for cotton manufacturing to make larger gains in the cotton growing States than elsewhere in the United States is partially due to greater accessibility to the raw material, but more important than this has been lower taxation and cheaper labour costs. Not only are the wage scales lower in the South, due partially to lower costs of living and partially to less industrial competition for labour, but the working hours are longer.

Though cotton is manufactured in many different parts of the country the industry is largely centred in two sections. The Southern mills are located mainly in North and South Carolina and in Georgia while the Northern mills are chiefly in New England, or, more specifically, in Massachusetts, Rhode Island, New Hampshire and Connecticut, though a considerable part of the industry is in Pennsylvania, New York and New Jersey.

Southern mills have for a long time consumed more cotton than the Northern mills. In the past the excess was accounted for by the fact that mills in the cotton belt spun coarser yarn than the other mills. More recently, especially since the beginning of 1921, the difference between the consumption of Southern and other mills has increased, and the South has definitely assumed the lead in relative activity as well as in consumption of raw material. On March 31, 1923, the cotton

growing States had only 78 per cent. as many spindles as there were elsewhere in the United States, but as during that month they had kept a larger proportion in activity, and because they had worked each active spindle two-fifths longer than in the North, the total active spindle hours in the South were one-sixth greater.

Yarn production in the United States increased from 1,467 million lbs. in 1899 to 2,347 million in 1919, the most recent date for which census returns are available. The mills in the cotton growing States contributed seven-eights of this gain, having an output of 1,351 million lbs. in 1919, as compared with 969 million in the Northern mills. Of the total production in 1919, 1,123 million lbs. were classified as coarse, that is No. 20 and under; 1,063 million as medium, Nos. 21 to 40; and 161 million as fine, or No. 41 and over. As compared with 1899 the Southern mills showed a substantial increase in the output of coarse yarn, and a decidedly larger gain in production of medium yarn. In the fine yarns the gain was from one to forty-three million, though the Northern mills still produced the bulk of this output, 118 million. The Northern mills produced less coarse but more medium and fine yarns in 1919 than 20 years earlier.—(*The Staple Cotton Review.*)

## The Japanese Cotton Industry and the Earthquake Damage.

*Extract from "Osaka Mainichi" September 23, 1923.*

977,669 OR 20 PER CENT. OF ALL SPINDLES IN JAPAN PUT OUT OF ACTION BY RECENT EARTHQUAKE.

The actual damage done by the earthquake and fire to the Japanese cotton spinning industry is now estimated as follows :

### ENTIRELY DESTROYED BY FIRE

Name of Companies	Spindles
Dai Nippon Spinning Co.	43,396
Odawara Spinning Co.	30,720
Fuji Gas Spinning Co.	40,000
Fuji Gas Spinning Co.	44,288
Fuji Gas Spinning Co.	80,524

### CRUMBLIED

Toyo Spinning Co.	66,464
Hattori Spinning Co.	11,304
Tokyo Spinning Co.	23,600
Misshin Spinning Co.	59,152
Kanegafuchi Spinning Co.	30,440
Fuji Spinning Co.	30,192
Fuji Spinning Co.	52,472
Sagami Spinning Co.	76,184

### PARTLY DAMAGED

Dai Nippon Spinning Co.	101,836
Kanegafuchi Spinning Co.	98,404
Fuji Spinning Co.	13,824
Nishin Spinning Co.	111,224
Tokyo Muslin Co.	52,996
Tokyo Muslin Co.	32,064
	108,810

The following table shows the damage done to spindles per counts :

	Entirely destroyed Bales	Totally crumbled Bales	Partly damaged Bales
Counts—Under 20's	64,800	32,005	84,144
Counts—from 30's to 42's	114,424	141,404	297,902
Gassed Yarn	20,480	100,181	93,372

The total number of spindles thus damaged reached 977,669 and what approximates to 20 per cent. of all the spindles in operation in this country. The monthly capacity of all the spindles damaged is estimated as follows :

	Entirely damaged Bales	Totally crumbled Bales	Partly damaged Bales
Counts—Under 20's	3,240	2,600	2,207
Counts—Over 30's to 42's	3,482	4,242	8,937
Gassed Yarn	153	520	486

### MACHINES DAMAGED

The number of weaving machines affected by the disaster is reported slight, apart from the total loss of the 300 looms belonging to Odawara Spinning Company, the works partly damaged were as follows :

402 looms in the No. 2, No. 3, No. 4, No. 5 works of the Kanegafuchi Spinning Co.

692 looms in the Onagigawa works of the Fuji Gas Spinning Co.

1,568 looms in the No. 5 Oyama works of the Fuji Gas Spinning Co.

329 looms in the No. 2 Kameido works of the Nisshin Spinning Co.

1,638 looms in the Azuma works of the Tokyo Muslin Co.

500 looms in the Tokyo Muslin Co.

### RAW COTTON SHORT

Many companies who used to get supplies of raw cotton through Yokohama are now in a quandary. The following table shows such companies with their respective numbers of spindles :

Name of Companies	Name of Works	Spindles
Daiko Spinning Co.	Kawagoye	10,100
Daiko Spinning Co.	Kofu	2,720
Asahi Spinning and Weaving Co.	Sendia	25,224
Ashikaga Spinning Co.	Ashikaga	15,000
Nagoya Spinning Co.	Koriyama	8,800
Nagoya Spinning Co.	Niigata	24,784
Sanko Spinning Co.	Head Works	15,000
Toyo Spinning Co.	Kuribashi	0,000

Of all these spindles, 208,704 cannot be restored and the restoration of spindles in the works which have totally crumbled will take more than a year. The resuscitation of partly damaged works will be effected in about six months. The decrease in the demand for raw cotton as a result of these losses is estimated at present to amount monthly to :

	Works entirely destroyed Bales	Totally crumbled Bales	Partly damaged Bales
Indian cotton	3,758	3,016	4,628
American cotton	3,090	3,842	8,401
Egyptian Cotton	62	208	315

The larger proportion of the mills destroyed were engaged in spinning fine counts and consumed a comparatively large amount of American cotton. It is believed that approximately 50,000 bales of raw cotton were destroyed. Of these, 20,000 bales are said to have been destroyed in Yokohama warehouses and 15,000 in those of the Dai Nippon Spinning

Co. at Fukagawa. The total for Yokohama is to some extent borne out by the fact that at the end of July 17262 bales were in warehouse at that port.

The uncertainty which exists regarding the financial situation and the action of the insurance companies in regard to earthquake claims makes any forecast of events in this and indeed in all branches of industry almost impossible. Hitherto all mills have been working part time only and even so supply exceeded demand with the result that prices of yarn showed a continued fall. There is no doubt that Japanese spinners were face to face with a serious situation. When the disaster is regarded from the national point of view the havoc wrought by it in the spinning industry is very great, but from the narrower and local view-point of Osaka and other mills outside the affected areas, it is thought that results may, temporarily, be beneficial. A rise in price of both yarns and piece goods is anticipated and this, together with the large percentage of spindles destroyed, damaged or put out of action for the time being, will possibly enable all the remaining and undamaged mills to work full instead of part time as hitherto, and to realize fair profits. More than this it would be dangerous to say at the present moment, but the possibility of a temporary boom should not be overlooked.

We have received a cable from the Japan Cotton Spinners' Association, Osaka, reading as follows :—

"Ten mills containing 485,368 spindles and 300 looms have been entirely devastated. Fourteen mills have been partially destroyed ; in these 416,596 spindles and 4,785 looms were put out of action. These 24 mills totalled 901,964 spindles and 5,085 looms ; of these only 30,000 spindles are working to-day. It is estimated that roughly 200,000,000 spindles will restart early next year. The consequent reduction in the consumption of cotton during the four months ending December is estimated to be—American 56,000 and others 44,000, total 100,000 bales."

## The Cotton Industry in Czechoslovakia.

The business depression precipitated in Czechoslovakia early in 1922, by the too rapid appreciation of the Czech crown in foreign exchange, affected the cotton-textile industry with particular severity, owing to a combination of unfortunate circumstances, among which may be mentioned the rapid decline of raw cotton prices in that period, and the heavy stocks, both of raw cotton and finished goods, which the manufacturers were carrying. During a few months in 1922 operation of the mills was reduced from approximately 75 per cent. of normal to less than 30 per cent. Since the beginning of 1923 some improvement in the trade has developed, permitting increased activity to a present basis of approximately 35 or 40 per cent. of normal.

The Czechoslovak Cotton Spinners' Association represents 2,910,000 spindles, or 83 per cent. of the total number in the country. Of the total

number of spindles represented in the Association, reports covering the 1922 operating year were received from mills representing 2,771,000 spindles, or approximately 79 per cent. of the country's total. These reporting mills consumed 50,332 metric tons of raw cotton during the year, or at the approximate annual rate of 18 kilos per spindle, including both active and idle spindles. Yarn production of the Association mills reporting in the same period amounted to 46,101 metric tons, or an annual average of 16·63 kilos per spindle. With all the Association's mills running at normal capacity, it is estimated that their production of yarn should amount to 77,870 metric tons, or a yearly average of 26·76 kilos per spindle. The total number of spindles in the country at the end of 1922 was reported as 3,508,996, a decrease of 19,528 during the year. Of this total approximately 2,211,000, or 63 per cent. were actually in operation. The number of workmen in spinning mills during 1922 decreased from 21,700 to 16,000.

The textile industry, along with other industries, has made every effort to reduce operating costs and clean up old stocks, in order to bring its prices down to world levels and again get on a competitive basis with the principal foreign textile-producing countries. Up to the present time, the industry has only partially succeeded in bringing itself in line with foreign competition. Recent declines in the price of cotton textiles have made the position of the local mills somewhat more difficult, and made more apparent the necessity of still further cost readjustment. During this period the weaving mills have been largely cut off from export trade and have been dependent on the local market which has been slack. Large quantities of finished goods, which the mills were holding, have been liquidated at heavy loss. These stocks have largely been disposed of abroad. Old stocks of finished goods have now been practically cleaned out, and it is believed that both the spinning and weaving mills are in a much healthier condition and can quickly reflect an improvement in domestic or foreign demand, or any further reduction in operating costs.

Influenced by the depression in the trade and the fact that the number of looms inherited from the old Austro-Hungarian monarchy is somewhat out of proportion to the number of spindles, there has been some tendency of late for weaving establishments to emigrate abroad, more particularly to Hungary, Yugo-Slavia, and the Balkan States. This exodus of looms has not attained any great importance, but it may be significant of a movement that may become accelerated if the present tariff walls and other trade-restricting measures, which the succession States along with most other countries have introduced since the war, are not eventually much ameliorated.

In the post-war years no conspicuous change has occurred in the origin or quality of cotton consumed by Czecho-Slovakia. In the last pre-war year American cotton represented about 75 per cent. of the total used in Austria-Hungary, the balance being 18 per cent. East Indian and about 6 per cent. Egyptian. In 1920 the United States supplied 76 per cent. of the Czecho-Slovak raw cotton consumption; in 1921, 83 per cent.; and in 1922, 82 per cent. The increased use of American cotton was almost entirely at the expense of East Indian. Since the war no conspicuous change has occurred in the channels of trade or in the methods employed. Two or three of the larger firms have buying representatives in New York, while other houses buy principally through

Liverpool, Bremen, or Dutch houses. The Government-controlled consortium of mill operators for the purchase of raw cotton, organized shortly after the war, which resulted disastrously for all concerned, ceased to function long ago and has now practically completed its liquidation. The trade is therefore restored entirely to private hands and the purchasing is carried on by the individual firms, as formerly. Under present uncertain conditions the mills are exceedingly cautious, limiting their commitments on raw cotton to business in hand and to the most conservative trade prospects. As already indicated, any substantial improvement in the demand for finished goods, either in the domestic market or abroad, should be quickly reflected in increased purchases of raw cotton by the local mills.

While in general these local mills are in a position to finance their cotton purchases through the usual banking channels, the idea of warehousing American cotton in Czechoslovakia—say, at some point on the Elbe River in northern Bohemia—and the financing of this cotton by American capital through regular banking channels, or perhaps with the aid of the War Finance Corporation or similar agency, invariably arouses much interest. Such a project, it is reported, in principle would undoubtedly receive the full approval and co-operation of the Czechoslovak Government.—(*Government Commerce Reports, U.S.A.*).

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## The Elimination of Waste in the Factory

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By ROBERT STELLING, Dip. Ing., F.C.W.A.,  
Consulting Industrial Engineer.

THE wastes which occur in a factory may as a general rule be grouped under five headings, namely :

- (1) Waste of Management ; (2) Waste of Energy ; (3) Waste of Time ; (4) Waste of Material ; (5) Waste of Skill.

These headings are convenient for the consideration of the question, not only for the grouping of the problems but also for that of the remedies.

(1) Waste of Management is perhaps the most elusive and the least appreciated. The principal symptom of waste of management is the lack of time for creative thought on the part of the higher executives. The true value of an able man in any business is measured by his constructive work. If one considers any well-organized business it will be found that the work is so devised that it is as automatic and as regular as possible at the lower paid end of the staff, and becomes less and less a matter of routine as one comes to the departmental heads. The latter are provided with a measure of time for constructive work within their particular sphere of influence, a period which increases to 90 per cent. of the available time in the work of the managers and directors. The remedy lies then along the lines of scientific co-ordination and co-operation. Routine should be overhauled, and weak links replaced. Simplicity should be the keynote, but always with the principle in mind that no individual in the chain should work solely for his own immediate objective, but that his work should be done in such a way that the work of the

next, or next higher placed, man is rendered all the more straightforward and easy. Committees should be organized to take advantage of all the constructive ability of those individuals who are paid high salaries by virtue of the experience which has justified their appointment. The old manager's motto was : " Divide and Rule." The modern manager, realizing that friction is waste and that economy on all accounts is essential, adopts the motto : " Co-ordinate and Control."

If an organization is set up along these lines, if policy is discussed and results are examined at every stage with the aid of simple yet adequate routine, then the freedom from the worry of details and the elimination of those causes of friction and waste—the post-mortem examination (or enquiries held too late)—can be very largely obviated, and true economy in the development of the creative thought of executives can be achieved.

(2) The phrase Waste of Energy may at first sight seem incorrect, for we have been told that, according to the law of conservation of energy, no effort can be wasted. Energy, however, can be seriously dissipated, and the results from its application may be reduced to a very low ratio of output to input. It is no exaggeration to say that the avoidable waste of energy in any business amounts to 2s. per head per day ; usually enough to pay the Income Tax. The waste of power in leaky steam joints, uncovered steam pipes, inefficient belting, badly aligned shafting, and poorly maintained machinery is, while possibly trifling in each individual case, enormous in its aggregate ; but the waste of mechanical power in a factory is a small thing compared with the waste of human energy. An increase in output of 10 per cent. has been achieved solely from the provision of seats for workers.

Alterations in the height of benches so that a worker may sit or stand in comfort have resulted in improvements up to 15 per cent. increases. Rest pauses, again, enable workers to recuperate or to resist the onset of fatigue, and an analysis of the work curve of any factory where rest pauses have been scientifically introduced invariably shows an appreciable increase of output. But not only does the provision of rest pauses, the improvement of working conditions, the careful study of bench heights, seats, position of work and the like, result in a directly measurable increase of output ; the results are much more far-reaching. Care for the well-being of the employees, as shown by the introduction of improvements in lighting, heating, ventilation, in the application of motion study and fatigue study, improves the relations between worker and employer, and increases contentment in their work, with the further result of improvement in quality.

(3) Waste of Time is probably that waste which is most directly measurable, although few manufacturers go to the trouble of arranging their cost accounting system to achieve this end. It is not sufficient merely to assume that time has been wasted because a job has taken an hour longer than has been scheduled. The manufacturer who is inspired with a desire to economize must ascertain the cause of this excess, and it has been computed that 60 per cent. of the waste of time in factories is entirely the fault of the management. If tools are not adequate or ready when they are required, if material has to be hunted for, if machinery is not maintained at an efficient standard, how is it possible to blame the workman ? The first step in the elimination of waste of time is taken if output is planned, not only collectively for the

factory or department, but also individually for each man. If work is thus planned, difficulties are foreseen well in advance, waiting time can be eliminated, and work put in hand with a certainty that it can be started when scheduled, that conditions are favourable for economical production, and that it will not be interrupted, in the case of assembly work, due to the lack of provision of small yet important components.

This is one aspect of the elimination of waste of time, which depends for its success entirely upon efficient management. The other aspect affects both the employer and the workman. Payment by results, based upon scientifically determined operation times, under carefully studied and reasonable working conditions (and it must be emphasized that the bargain only becomes fair if conditions are studied and standardized), is the fairest form of bargain between management and labour, does not preclude collective bargaining on either side, and undoubtedly aids the elimination of waste of time.

(4) Waste of Material probably arises through the lack of appreciation of its value measured in sterling. It is a truism that stores are money, and that stores accounts should balance just like cash accounts. Wastage, pilfering, shortages and loss invariably arise if the storekeeping system is inadequate, and the simple provision of enclosing stores, of binning them properly, of installing bin cards controlled by a material ledger, and of placing in charge a storekeeper (not a decrepit individual paid 2s. above labourer's rate), will more than justify the expense in the majority of manufacturing concerns. Here it may be stated that a costing system, to be satisfactory, must be based upon an adequate stores organization. Waste of material by the workman can be obviated by planning, but another and very important factor in the elimination of this category of waste lies in the training of labour, particularly of cheap labour. Estimates varying from £3 to £20 are made of the loss entailed by starting a new worker, and of this loss the greater part is made up of material. Inspection of material before it ever goes into process is another important factor in economy, and it has proved to be a profitable arrangement to pay from one per cent. to five per cent. of the value of the material purchased during the year for receiving inspection.

(5) Finally, we come to the question of the Waste of Skill. The industrial conditions of to-day have wiped out the old form of handicraft skill with which a workman carried out a piece of work to its conclusion. The old form of apprenticeship under modern industrial conditions is a waste of ability and a waste of time, for the lad does not receive the training which the old seven-year apprenticeship was designed to give, nor does he have in after life the opportunity of putting into practice such a form of training. On the other hand, we are in great danger of losing the skill of our craftsmen without supplying something to take its place. It follows that our system of apprenticeship must be entirely revised, and that a new system of training must be set up in its stead.

The first step is to observe the methods of skilled craftsmen, to record them and to analyse them. From such careful investigation, often carried out with the aid of Motion Study, the record of skill can be preserved and be transferred to the younger generation by synthesising a "one best way" for teaching purposes to suit the modern conditions of industrial life.

Another method lies in the study of the actual work on specialized

operations. Motion Study comes to the aid of the industrialist and of the workman here, in that, by dint of careful investigation, causes of fatigue and distraction can be removed, work made more pleasant, an interest in a new technique inspired, and the innate skill of the British worker turned to the best advantage.



Fig. 1.



Fig. 2.

Two simple illustrations of the application of Motion Study are given in Figs. 1 and 2. Fig. 1 is a chronocyclegraph—or record of the path of a movement in terms of time—of the left-hand movement of the most skilled worker on one operation in a photographic materials factory. Observe the confused movement at one part of the cycle, and also note that the complete cycle takes 64 units of time to perform. After making changes in bench height, position of inspection lamp, design of trays, etc., and after training the girl in a new method inspired by the analysis of many such chronocyclegraphs, the result shown in Fig. 2 was achieved. Observe the much clearer and more rhythmic movements; also that the complete cycle occupies 47 units of time. This represents an increase of output of 40 per cent., and the worker was considerably less tired at the end of the day than working under the old conditions.

Reviewing all these wastes, it must be impressed upon every observer that economy only becomes possible if the *human element* in Industry is most carefully studied and considered, and indeed it is upon the appreciation of this factor that the efficiency methods of the "efficiency engineer" are based. (Reprint from the *Bulletin of the Federation of British Industries*.)

## SCIENCE AND WASTEFUL PROCESSES.

"The Physicist in the Textile Industry" was the subject of a lecture given recently at the Institute of Electrical Engineers by Dr. A. E. Oxley, physicist to the British Cotton Industries Research Association.

Dr. Oxley said it had been one of the weaknesses of the cotton industry that it had not used to the full the immense power bestowed on this

generation by scientific discovery. The textile industry offered an almost entirely unexplored field for the research physicist and problems sufficient for the brigade of physicists. There was no history so much in need of co-operation with the physicist as those of the textile group. Producing a specimen of cotton pod grown under glass in Manchester, Dr. Oxley explained the manufacturing processes it underwent, and in offering illustrations of the assistance of scientific method he said that one of the most important qualities of spun thread was its evenness or regularity. Hitherto the spinner had used the primitive method of taking a thread and winding it on a card, and the test of regularity was that of looking at the patchiness of the yarn. "I think there is no machine of the cotton trade," concluded Dr. Oxley, "which cannot be improved, and if you think of the enormous number of processes through which the cotton has to pass and the labour entailed in handling the material you realize that if one or two of these processes could be eliminated it would mean millions and millions to England." It was by a combination of efforts between scientists and the operatives that a trade of such vast importance to England and the world would prosper.

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## Humidification in Indian Cotton Mills

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*The Report on Humidification in Indian Cotton Mills, by Mr. T. Maloney, Adviser on Humidification to the Government of India, has just been published.*

THE question of adequate ventilation of cotton mills in India has for many years engaged the attention of the Central and Provincial Governments and Mill Owners' Associations, but up to the present time it has not, for various reasons, been possible satisfactorily to regulate conditions by legislation. In 1907, the Textile Factories Labour Commission drew attention to the unsatisfactory conditions in Indian mills and suggested further observations with a view to deciding the amount of moisture necessary for manufacturing processes bearing in mind the health of the operatives, and recommended the fixation of ventilation standards. In 1908 a further Factory Labour Commission stressed the extreme importance of the question. In 1911, a Factory Ventilation Committee was appointed by the Government of Bombay, but the bulk of the observations made dealt with the chemical purity of the atmosphere, and during its deliberations the report of a similar enquiry in England discountenanced the importance of chemical purity, and stressed the importance of humidity, and no Government action was taken towards the fixation of a ventilation standard. Further observations of atmospheric conditions in cotton mills of the Bombay Presidency were made prior to the war, but no definite recommendations were made on account of the absence of data relating to health, and the effects of work in hot moist atmospheres.

The present investigation was commenced in June, 1921, and continued till December, 1922. It extended to all the important centres in which cotton manufacture is carried on, and in each centre the observations

cover at least one complete year. The investigation was designed (1) to obtain accurate observations regarding the methods of humidification and ventilation employed in cotton mills and their effect on working conditions; and (2) to evolve recommendations designed to effect a marked amelioration in conditions without serious detriment to the industry.

#### LINES OF ENQUIRY.

Data were collected on the following points :—(1) Temperatures and humidity in cotton-weaving sheds for a complete period of one year in the chief centres of the industry in India; (2) temperatures and humidity in other departments, but not on so extensive a scale; and (3) atmospheric cooling powers in cotton-weaving sheds in large industrial centres; (4) effect of atmospheric conditions on pulse rate, respiration rate and body temperatures of mill operatives in different seasons; (5) the general physique of mill workers; (6) the effect of work in different departments on weight and general physique; (7) sickness incidence among mill workers at different seasons of the year; (8) the effect of varying atmospheric conditions on efficiency and fatigue as measured by output; (9) the chemical purity of air in mills; (10) the practical possibilities in the matters of temperature reduction and general improvement of atmospheric conditions; (11) the types of mill construction in India, and their effects on temperatures; (12) systems of ventilation and humidification used in Indian mills; and (13) atmospheric conditions in cotton mills as compared with other works.

#### ARRANGEMENT OF REPORT.

The Report is divided into 30 sections. Section 1 deals with the reasons for the use of artificial humidity in the various processes of manufacture and indicates the percentages of relative humidity which are advantageous at each stage of production for the efficient manipulation of the fibre. Section 2 gives short descriptions of the methods employed to increase artificially atmospheric humidity in the mills investigated. Sections 3 to 14 deal with the actual temperatures in mills in different centres and their influence on the comfort of operatives. The influences on temperature of various methods of humidification are also indicated in these sections. Sections 15 to 19 deal particularly with ventilation and include observations upon cooling powers in and the chemical purity of the air mills. A comparison of cotton mills conditions as compared with other workshops is given in Section 19. Sections 20 to 25 deal with the effect of present conditions upon body temperatures, physique, and efficiency of operatives. Sections 26 to 30 indicate the practical possibilities of improving conditions by the adoption of more suitable methods of ventilation, humidification and mill construction.

#### RECOMMENDATIONS.

The recommendations made as a result of the observations are as follows :

1. It is desirable to fix a standard of ventilation for all factories and workshops in India on the basis of the cooling power of the air as measured by the wet kata-thermometer.
2. The standard of ventilation demanded for different trades should take cognizance of the class of work performed, and the degree of atmospheric cooling power demanded should be increased in accordance with the degree of muscular activity demanded by the work.

3. For cotton mills throughout India, the ventilation should be such as to give a minimum cooling power of 11 milli calories per square centimetre per second at a height of five feet, in positions usually occupied by an operative in the performance of his ordinary duties. This standard is very much lower than that recommended for sedentary workers in other countries, but would be sufficient to prevent visible perspiration in the majority of cases, and would represent a vast improvement in the cooling powers usually found in weaving sheds during the greater part of the year.

4. Such a standard should be equally applicable in all departments, and in all processes of cotton manufacture, irrespective of whether humidity is artificially introduced into the room in which the particular process is carried on or not.

5. In order to give sufficient time for mills to fit arrangements capable of producing the required standard of cooling, the adoption of a ventilation standard measured by atmospheric cooling powers should be postponed until July 1, 1925.

6. In the interim, atmospheric conditions in those departments in which artificial humidification is practised should be regulated in accordance with the readings of approved wet and dry bulb thermometers according to a given schedule.

7. Artificial humidification by the introduction of live steam should be prohibited when the dry bulb temperature of the department reaches 85 degrees Fahr.

8. In shed buildings, in which any process of cotton manufactures is carried on, the use of corrugated or galvanized iron as a roofing material should be prohibited unless :

- (a) covered by tiles, slates or other roofing material, or
- (b) underdrawn by wooden boards at least  $\frac{3}{4}$  in. in thickness, or similar non-conducting material, or
- (c) the average height of the room is more than 20 ft., or
- (d) roof arrangements are made whereby the roof is kept cool by spraying with water whenever the shade temperature exceeds 95 degrees Fahr.

9. It is not essential to make the whitewashing or water-spraying of roofs of all shed buildings compulsory during the hot weather, but mill agents and managers are recommended to adopt generally these methods of reducing room temperatures.

10. In cases where the Factory Inspector deems it advisable, he may be given powers to order roofs of shed buildings or the roofs of story buildings to be whitewashed or sprayed with water.

11. The system of ventilation and humidification adopted in Mill LI should be more extensively adopted in new mills of suitable construction owing to its very great advantages as a cooling plant.

Proposed rules for the control of atmospheric conditions in cotton mills until such time as Government enforce a ventilation standard based on cooling power and the effect these would have in application are given at the end of the Report, where also will be found as appendices a list of mills from which records were obtained, bibliography, and useful statistics and graphs. (*Indian Trade Journal*, 4th October, 1923.)

## The Cotton Industry of Russia.

Mr. Nogin, president of the Board of the All-Russian Textile Syndicate, has been in England for some days, and is now on his way to America. He gives an interesting account of the development of the textile situation in Russia, and makes clear some points which have hitherto been uncertain. The increasing efficiency of the factories is shown by the fact that in cotton factories the average is now 10 operatives for every 1,000 spindles, whereas a few months ago it was usually 12 and often 14. The factories are working to over 30 per cent. of pre-war capacity. Mr. Nogin says there is this year a good cotton crop in Turkestan, and the area is largely increased, being 200,000 dessiatines, as against 54,000 dessiatines last year. The yield has been three-and-a-half million poods of raw cotton and the price 25 gold roubles per pood. The crop has been financed by the sale to Turkestan of grain, sugar, and textile goods.

"This crop," said Mr. Nogin, "though it is a good one, is insufficient to meet the requirements of the 3,400,000 spindles in our factories. The total amount of raw cotton we want is from six to six-and-a-half million poods (36 lbs. equals 1 pood), so that you will see our home supplies are not much more than 50 per cent. of our needs. We have already bought two-and-a-half million poods of American cotton, which has been paid for with Russian gold. Now that we have been such large buyers in the market we expect to be able to do business on better terms, and should be able to obtain reasonable credit. Up till now it has been very difficult for English firms to do business with Russia. There is a great inconvenience in concluding each transaction for small parcels separately, and we really require bank credits." By this Mr. Nogin meant all the various purchases he made should be cleared through a bank acting for him.

"This lack of ordinary trading arrangements makes it very difficult for Liverpool merchants to do business with us," he continued, "but you will see that our position justifies confidence if you look at our general balance-sheet for all textile industries for 1922, and see that in spite of all difficulties our profits were 16,840,762 gold roubles.

"In spite of the obligation placed upon us to lower prices, we have been able to do something towards replacing old machinery, building houses for our operatives, and so on. The replacement of machinery is an urgent matter, for in some factories we are working with machinery which is 60 years old, and on the average the age of our machines is 15 to 20 years. It is possible to go on using these latter, but for a real development we must have new machines.

"I venture to think that the provision of that machinery by English firms would be a profitable business both for England and Russia. You will understand when I tell you the magnitude of our requirements that the programme cannot be met unless we can obtain good credit for the machinery. Our requirements in cotton machinery alone are to the value of 300,000,000 gold roubles, and for the woollen, flax, and silk industries 150,000,000 gold roubles. In addition to this we want to buy cotton, and hope to buy raw wool on the English market. We cannot hope to fulfil our machinery programme except by gradual stages. I am discussing the matter with English firms, but our conversations are not yet completed.

"Yes, we are able to command some credit already, but so far we

have found that American firms are generally willing to give us longer terms than English sellers. I am now going to America to discuss the purchase of raw material and also of machinery."

In connection with the recent fall of prices of textiles in Moscow, Mr. Nogin gave a detailed explanation. He said the syndicate had been formed for about 18 months. Before that the system of accountancy had been bad and prices chaotic. The fixed prices in the State shops were too low, and the prices on the speculative market often very high.

In February, 1922, when they began operations, the pood of rye would purchase from 10 to 12 arshins of cotton cloth—that is to say, the peasant's rye had two-and-a-half times the purchasing value that it had before the war, when the pood of rye would buy four arshins of calico. After the famine the price of bread inevitably fell, and by September, 1922, the pre-war ration between the two had been reached. But the price of bread continued to fall, until in March, 1923, the divergence was great enough to warrant Trotsky's simile of the pair of scissors.

Since the recent reductions in force following on the reorganisation of the trust system, the reduction of trade expenses, and the better terms on which it has been possible to buy the raw material the ratio has been on a more reasonable scale, i.e., the arshin of calico is now purchasable for 29·5 funts of rye (that is roughly five-sixths of a pood). This is still unsatisfactory, as it means the peasant's shirt costs him three poods of rye instead of one.

The wholesale price of printed cottons is now 27 gold kopeks, as against 38 to 39 gold kopeks charged at the Nijni-Novgorod Fair. In order to reduce retail prices the Syndicate have decided to open more retail shops of their own, and have now five in Moscow. As the result of determined effort prices have been reduced in every industry except metallurgy. The price of metal products is still high.—(*Manchester Guardian Commercial*.)

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A somewhat different description on the situation in the cotton industry of Soviet Russia has been received by us from the Association for the Reconstruction of the cotton industry in Central Russia, from the November report of which the following is an excerpt :

"The industry of Soviet Russia is passing through a real crisis which threatens to become a catastrophe. Hardly any goods are being sold. Stocks are being accumulated and the necessary working capital is consequently at a very low ebb.

The lack of demand is solely due to the high cost of the goods, at which the consumers are unable to purchase them.

The high expectations which were held as regards wheat and rye exports have not materialized and the main consumer of cotton goods, the peasant, has still no money, just as before, because prices for his crops keep very low. In the main wheat and rye producing centres such as the Governments of Odessa, District of Jekaterinoslav and Donez, prices per pood (36 lbs.) were :

							Gold kopeks		
							June	August	September
WHEAT.									
Donez	..	..	..	..	..	..	82·8	68	42·2
Odessa	..	..	..	..	..	..	67·66	47·68	42
RYE									
Donez	..	..	..	..	..	..	88·4	28	20·25
Odessa	..	..	..	..	..	..	42·28	27·85	27·67

"In October, prices were further reduced, and at times reached 15 gold kopeks per pood.

"According to the statistical calculation of "Gosplan" the prices of agricultural produce amounted to .54 of the pre-war rates, whilst the products of factories averaged 1.71 of the pre-war rate; but it must be borne in mind that textile goods stand to-day 2.75 higher than their pre-war rate. Needless to say that under such conditions even the most current qualities of cloth cannot be sold.

"With a view to reducing the cost of production, the Government has made further reductions in stopping completely 28 mills, of which three are spinning, eight weaving, four spinning and weaving, two finishing, five printing, three hosiery, two wadding and one doubling. This reduction amounted to 23 per cent. of the whole of the machinery and 16 per cent. of the total output of the mills, yet, in spite of this, the reduction in the cost of production was only 5 per cent. The cause of this slight reduction was due to the fact that several of the other mills were able to run only from 15 per cent. to 30 per cent. of their capacity.

"As no appreciable price reduction could be obtained in this way, the Administration simply reduced prices of the stocks and the local Centres sold cotton goods cheaper than the present prices of the Trusts (in which more than 47 per cent. of the entire textile industry are incorporated). The Trusts, therefore, were obliged to reduce their prices by 10 per cent., but the Government Commission further reduced prices and they are now as much as 18 per cent. lower than formerly.

"In spite of these reductions, business has not resulted, the buyers are waiting as they consider the situation of the cotton industry, in consequence of lack of funds for working capital, so precarious that they will have to sell their goods, no matter at what price. The mills had, in September, great difficulties in paying the wages, but finally through a grant of a credit of two million 'Tscherwonzy', the Finance Department overcame this serious position.

"Of course this is a mere palliative which will never be of permanent avail. The situation is aggravated by the fact that the Government Bank, in consequence of urgent requirements for wheat operations, has been compelled to suspend almost completely discounting, etc., as the right of issuing by the Bank is completely exhausted. Considering that the textile industry took up more than 79 per cent. of all the credits granted by this Bank to industries and that the Textile Trust is selling 60 per cent. to 90 per cent. on credit, it will be realized how it is affected by this discontinuance of the discounting of bills, etc.

"The lack of cotton is another serious factor. Difficulties arise in obtaining the cotton crop from Turkestan and Persia and the purchase of raw cotton abroad cannot be undertaken in the requisite quantities owing to the lack of funds. It is stated on a reliable source of information that a number of raw cotton orders had to be cancelled for this reason."

This report ends with the following words :

"The example of the textile industry is a magnificent experience of the impracticability of the centralistic tendencies of pure Communism and this is best described in Lenin's own words—"the complete defeat of Russian Communism on the economic front."

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## Foreign Competition and Textile Machinists' Exports.

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Address by MR. FRANK NASMITH

A N open conference was held on November 10, when Mr. Frank Nasmith dealt with "Foreign Competition and Textile Machinists' Exports." Mr. Arthur Pollitt presided.

Mr. Nasmith, at the outset of his remarks, stated that any argument tending towards the restriction of exports was something in the nature of an absurdity, because they could not stop the flow of natural products neither could they hamper the machinists from exporting their goods. One might as well attempt to prevent the spinner and manufacturers from doing business abroad.

He proposed, however, to set out a few points, and leave the rest of the problem to the subsequent discussion. He took it that the idea prevailing was that every textile machine sent out to a competitive country was in effect another weapon in the hands of that country to be used against them. But that did not end the question, and it was just as well that they should realize that there should be no attempt to prevent the flow of their machines overseas. India, China, and the East were their big markets for both yarn and fabrics, and if they had increased their takings of machinery in the past it had, at any rate, not been accelerated since the war. Relating to India and China, two sets of figures were worth looking at. The spindleage in India in 1910 totalled 6,250,000. In 1920 the figures were 6,870,804, or roughly an increase of 600,000. China in 1910 possessed 519,000 spindles; in 1920 the number had increased to 2,066,582, or almost four times the original amount. Japan in 1910 returned 2,131,294 spindles, and in 1920, 4,483,258. The last-mentioned return was before the lamentable earthquake, which had wiped out a certain number.

From the point of view of external competition, neither India nor China produced any goods in excess of what could be consumed in their own countries. The trade of Japan was an entirely different matter, and here they would discover from the figures of Japanese exports that a different phase presented itself during the war and since. Whilst hostilities were in progress Japan was in the position of a nation very well protected in itself but finding Britain owing to transport difficulties unable to compete. As a result the takings of machinery were built up, and exports to India mounted rapidly. But since the end of the war Japan's sales to India had dwindled away again, and were down at that date to a comparatively small per centage. Regarding Russia, where few of the 7,000,000 spindles had been at work, Japan had, without a doubt, succeeded in delivery a considerable amount of manufactured goods from her surplus stocks. He must again remind his hearers that he was dealing with a situation that prevailed prior to the earthquake.

**QUESTION OF QUALITY.** In his opinion the question of quality had a great deal to do with what was going to happen to them in the future. The increasing wealth of any country industrially was going to assist those people to buy better quality articles. He believed their market in India would go in that direction, quite apart from any question of sending

out machinery or the setting up of high protective duties. Regarding China, it has been said that if they increased the size of a Chinaman's garb by one inch it would be sufficient to keep the whole of the mills of Lancashire running full time. Be that as it may, there were great areas in China yet untouched awaiting development. That, however, was only one of their difficulties. In India to-day more piece goods were being imported from America than had ever been the case before. In the Southern States of America there were practically one million more spindles at work in the cotton belt alone, and so frightened were the New England manufacturers becoming that they themselves were commencing to remove farther south, nearer the belt, in order to maintain their own positions as spinners and manufacturers. Despite this he would point out, as he had done in the earlier part of the present year, that the competition from the States in a real sense was almost negligible. America had fallen away since the war, and so long as Lancashire continued to produce the best quality goods, as they had done in the past, he was convinced that they would get over any tariff wall.

**FOREIGN EXPORTS.** He proposed turning to the actual question of foreign exports, granting always the production of an extra pound of yarn or cloth in a foreign country increased competition in this country. Taking the years 1913-20-21-22-23, the year 1923 covering nine months only, the exports of textile machinery to foreign countries and British possessions were :

			Tons
1913	..	..	178,074
1920	..	..	68,814
1921	..	..	157,044
1922	..	..	155,156
1923	..	..	108,668

He had taken tonnage in making the return because values as between 1913 and 1923 could not be readily compared. It would be seen in connection with 1920-21-22 a very considerable amount of leeway remained to be made up. Further, there had been no replacements and no renewals during certain periods, so that the increase in competitive machinery, taking all things into consideration, was not so very great. Another factor to be taken into account, when they considered their argument of that evening was, however they themselves might try and stop exports there were other countries in the world over whom they had no sort of control. America, France, Germany, Italy, Switzerland, and other nations were now making textile machinery in varying quantities. He himself had been over many works in America and on the Continent. He had seen works in the United States equal to almost anything they had got in this country, and situated where there was ample room for expansion. The methods of handling machinery, tools, and the like were all that could be desired. Formidable opposition awaited them in this quarter. America had her own agents on the Continent, so that if it were possible to keep the products of Lancashire textile works in this country it would only serve as an impetus to concerns abroad that were just as well equipped as their own. There was a slightly growing competition in Germany, and recently in Switzerland he saw some of the finest looms that he had ever seen which were commanding a ready sale, some for their own country. Prevent machines from leaving England, and they at once gave the manufacturers of each country a chance of selling amongst themselves. Take China during the war.

**POSITION IN CHINA.** The United States before 1914 were going ahead in China with the sale of textile machines. Whilst the war was on they secured a considerable number of orders. The Japanese were also busy in the same direction. The increase continued to such an extent that the leading makers carried out special journeys with the object of seeing if exports could not be arranged in greater quantity. The following figures would show the competition between the United States, Japan, and this country in China in textile machinery :

**TOTAL SPINDLES AND LOOMS IN CHINA**

		Spindles working	Spindles projected
British .. .. ..		1,768,755	662,272
American .. .. ..		804,584	243,068
Nationality unknown .. .. ..		23,592	28,000
		Looms working	Looms projected
British .. .. ..		5,833	1,976
American .. .. ..		2,406	400
Japanese .. .. ..		1,970	2,189
Japanese and American .. .. ..		998	—
Nationality unknown .. .. ..		800	320

Total spindles working 2,591,931, spindles projected 933,340. Looms working 12,007, looms projected 4,887.

**COST OF MACHINERY IN VARIOUS COUNTRIES.** There was another aspect and it was one that should appeal to all who wished to produce cheaply. A good deal was heard in the engineering industry concerning mass production, but they had this going on in their own cotton textile works, where in his opinion the finest example ever seen of mass production was in progress. He was not going to say that machines had, at times, not been produced too cheaply. In many instances they were. He could remember of a cheap loom at £6. Something, at any rate, to put up against any Ford car as regards mass production and price. The thing to remember was that mass production of textile machinery was due entirely to the world-wide market being available for products. Cut off foreign markets, and the price of textile machinery would at once rise considerably. They might even have to import certain classes of machine. Even now there were certain makes of winding machinery of foreign origin being imported into this country. A new type of tie jigger had been selling in Yorkshire during the last fortnight. The exclusion of the foreign buyer and the cutting down of mass production simply meant a big addition to the capital charge on the mills.

Before the war a mule made in this country and exported to the United States cost the user just double the price Oldham or Bolton would pay for it. A Nasmith comber selling in this country for £180 cost the American user £300. The following figures of the cost of cotton mills and machinery afforded a striking commentary on this part of his argument :

	Per spindle
Great Britain, mill, buildings and plant (approximately) ..	£2 10 0
U.S.A. .. .. ..	10 0 0

A comparison with France gave Great Britain ring-spinning machinery only £1 12s. per spindle; France, ring-spinning machinery, £2. In regard to an increasing competitor, Poland, the figures were : Great

Britain ring mill, £2 10s. per spindle; Poland, ring mill, £3 10s. On a 50,000 spinning mill the amount of increased capital was £50,000.

Again, take a 20,000 spinning mill, 20's counts, to be erected in China. The cost of machinery alone delivered at Shanghai, duty paid, worked out at from £3 10s. to £4 per spindle. To this, of course, must be added the cost of buildings, engines, shafting, etc. If 16's counts were to be spun the cost would be £4 7s. per spindle.

Enough he thought, had been stated to prove that economically they would be well advised to keep the machinists in Lancashire. Other considerations also stepped in that to him appeared important. At their very doors they had available the first opportunity of dealing with all the latest improvements. These were perhaps not always adopted so frequently as they might be, the Northrop loom being a case in point, but the advantages of always being able to secure immediate experiment were great. In conclusion, he would ask them to imagine what would have happened had they lost their big textile trade. If the machinists of Oldham and Bolton had not had the orders which had come to them during the last two or three years both those towns would have been very much poorer to-day. The amount of money paid in wages alone by a firm like Platts or Lusin, Oldham, must have been enormous, and assisted the general welfare of the town very considerably.

## MEXICAN COTTON MANUFACTURING INDUSTRY

The Mexican Treasury Department, according to advices received from the Textile Division of the Bureau of Foreign and Domestic Commerce, has recently issued a report on the cotton manufacturing industry of its country. High lights in the report are given here. In the six months' period from November, 1922, to April, 1923, consumption of raw cotton amounted to 16,617,422 kilos (1 kilo equals 2.2046 lbs.). This consumption equals 76,642 bales of 478 lbs. each.

During the period covered out of 139 mills in the Republic there were in operation 112 mills with a total production in the six months' period of 153,489,826 m. (1 m. equals 1.094 yds.) of cotton cloths, this including plain cotton cloth, cloth of coloured thread, bleached cloth, print goods, dyed goods, drills and canvas. In addition the same factories produced 15,937 dozen towels, 7,861 dozen bedcovers, 16 dozen quilts, 500,611 dozen stockings and socks, 74,730 dozen underskirts and drawers, and 8,103 dozen sweaters, or a total of more than 584,000 dozen of the various products above enumerated.

Invested capital in the 112 mills operating was given as 71,728,806.27 pesos (1 peso equals U.S. \$0.4985). Power consumption by the cotton mills during this period amounted to 40,816 h.p. Machinery used by the 112 mills in operation comprised 801,639 spindles and 29,503 looms. The number of operatives employed was 40,051, these including 29,836 men, 6,757 women and 3,458 children, and average daily wages paid were 2.24, 1.50 and 0.86 pesos. These employees worked a total of 182,684 hours. Total sales made by the cotton mills during the six months amounted to 40,193,142.75 pesos.—(The National Association of Cotton Manufacturers, Boston.)

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**IMPORTS OF COTTON INTO THE UNITED STATES,  
1922 AND 1923.**


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Almost half a million bales of "foreign cotton" were imported last year by American interests, as is shown from the following table:

Countries of Production	Twelve months ending	
	1922	1923
France .. .. ..	40	—
Panama .. .. ..	63,700	3,236
Mexico .. .. ..	26,818,225	22,839,486
British West Indies .. .. ..	284,882	285,901
Dominican Republic .. .. ..	28,848	1,200
French West Indies .. .. ..	—	77
Haiti .. .. ..	698,879	160,444
Brazil .. .. ..	4,150,597	2,084
Ecuador .. .. ..	877	—
Dutch Guiana .. .. ..	—	1,630
Peru .. .. ..	19,376,486	10,592,688
British India .. .. ..	5,174,208	11,061,844
China .. .. ..	7,781,532	25,119,553
Dutch East Indies .. .. ..	481,085	90,670
French Indo-China .. .. ..	—	80
Japan .. .. ..	.. 120	—
Kwangtung .. .. ..	—	72,872
Palestine .. .. ..	—	78,425
British South Africa .. .. ..	8,648	—
Egypt .. .. ..	116,864,612	164,687,645
Total .. .. ..	181,732,714	234,977,045

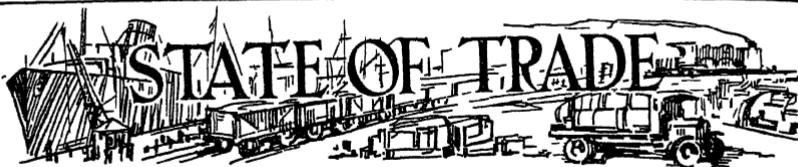
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**Cotton Consumption in the State of São Paulo (Brazil)  
from 1911 to 1922.**

*Statistics supplied by the Centro dos Industriaes de Fiação e Tecelagem, S. Paulo.*

Year	Cotton produced and consumed in São Paulo	Cotton imported from North Brazil and consumed in São Paulo	Total cotton Consumption in State of São Paulo
1911 .. .. ..	6,598,401	7,614,550	12,242,951
1912 .. .. ..	5,621,468	7,163,287	12,784,750
1913 .. .. ..	11,945,240	6,620,814	18,566,054
1914 .. .. ..	2,828,475	6,888,127	9,216,602
1915 .. .. ..	3,914,496	12,732,644	16,647,140
1916 .. .. ..	7,846,867	10,601,118	17,947,970
1917 .. .. ..	11,122,426	14,245,740	25,368,166
1918 .. .. ..	18,018,834	10,223,397	24,136,731
1919 .. .. ..	28,239,851	1,780,857	25,020,608
1920 .. .. ..	22,808,048	1,167,037	23,976,000
1921 .. .. ..	22,755,822	4,978,841	27,784,163
1922 .. .. ..	4,563,848*	16,611,376	21,177,219

\* The quantity is small because the largest portion of the crop was exported to Europe, the Brazilian spinners came too late in the market



## STATE OF TRADE

### Reports from Affiliated Spinners' and Manufacturers' Associations.

The following are the reports which have come to hand from affiliated Associations during the last week before going to press. Reference is also invited to the reports on the State of Trade given in the extract of the Minutes of the London Committee Meeting, printed at the commencement of this BULLETIN. Generally speaking, trade has improved in the larger producing countries during the last six weeks.

The upward trend in the price of cotton caused to some extent an improvement in trade, but the seesaw movement that has lately set in has had a serious check. New orders are scarce and small.

#### BELGIUM.

##### WAGES.

Since our last report, wages in the cotton industry have been twice advanced. The first rise of 5 per cent. took place at the end of September and the second in the middle of November. Since March, 20 per cent. in all have been added to the wages.

##### DEMAND.

The high cotton prices, caused partly through the rate of exchange, have a tendency to reduce the home consumption of cotton goods. On the other hand, business for export has improved and spinning and weaving mills are well supplied with orders. So far we have not had any need to organize short time. Stocks are insignificant and the Order Book is not too full. Most orders are for quick delivery, as clients are buying from hand to mouth. Before the war they could buy without great risk several months ahead as the fluctuations were very small, but to-day the situation is entirely different. In a country like ours, where the rates of exchange are extremely sensitive to political events, fluctuations of 5 per cent. in the rate of exchange of the dollar or £ sterling very often take place within a few hours, which, of course, imposes a necessity upon the buyer and seller to act with the greatest circumspection.

##### CONSUMPTION.

We must point out that the demand for East Indian cotton is increasing considerably, whilst the consumption of American cotton is falling off. This is due to the fact that buyers can only seldom be persuaded to pay high prices and, consequently, they are bound to have recourse to the low qualities. The consumption of Indian cotton during the last four years is shown in the following figures, alongside those of American cotton, and a comparison of these will be found to be very instructive :

		INDIAN	AMERICAN
		Bales	Bales
Year ending 31st July, 1920	.. .. .. ..	78,000	170,000
" " " 1921	.. .. .. ..	94,000	118,000
" " " 1922	.. .. .. ..	100,000	136,000
" " " 1923	.. .. .. ..	127,000	129,000

*The following is the original of this report :*

## BELGIQUE.

Depuis notre dernier rapport les salaires ont été majorés à deux reprises dans l'industrie cotonnière. Une première augmentation de 5 pour cent est entrée en vigueur à la fin de septembre, une deuxième augmentation de 5 pour cent à la mi-novembre. La majoration totale des salaires se trouve être ainsi de 20 pour cent depuis le mois de mars.

Les hauts prix des cotons influencés par le change ont une tendance à réduire la consommation du pays en tissus de coton. Par contre des affaires continuent à se traiter pour l'exportation et permettent d'alimenter les filatures et les tissages aussi. Jusqu'ici nous ne nous sommes pas trouvés dans la nécessité d'organiser le short time. Le stock est toujours insignifiant et le carnet d'ordres peu important. Les ordres sont remis pour livraison rapide et se renouvellent au fur et à mesure des besoins. Avant guerre les acheteurs pouvaient sans gros risques s'engager pour plusieurs mois, les fluctuations des prix étaient minimes. Tout autre est la situation aujourd'hui surtout dans des pays comme le nôtre où les cours du change sont extrêmement sensibles aux événements politiques. Des variations de 5 pour cent en quelques heures de temps dans les cours du dollar et de la livre sterling ne sont pas chose rare et il est compréhensible qu'elles imposent aux acheteurs et aux vendeurs la plus grande circonspection.

Il y a lieu de signaler que la demande augmente en cotons des Indes au détriment de la consommation des cotons d'Amérique. Le consommateur se résigne difficilement à payer des prix élevés et se rejette sur les qualités inférieures. La consommation des cotons des Indes s'établit comme suit durant les 4 dernières années, il est intéressant de la rapprocher de celle des cotons d'Amérique :

		INDES	AMÉRIQUE
	Balles	Balles	
Année terminant le 31 juillet, 1920	..	78,000	170,000
" " " "	1921	94,000	113,000
" " " "	1922	100,000	186,000
" " " "	1923	127,000	129,000

## DENMARK.

### WAGES.

No change has taken place since our last report, but both organisations have commenced negotiations with a view to prolonging the existing wages agreements which expire on the 1st February, 1924. The index figure last published shows that the cost of living is now 104 per cent. higher than in 1914, whilst wages are at least 150 per cent. above 1914 basis. The workers being consequently in receipt of a numeric excess of wages of from 40 per cent. to 50 per cent., while at the same time the working hours have been reduced from 57 to 48 per week. In view of these facts and in consideration of the unfavourable prospects for the industry, employers cannot raise the wages and the existing agreements will have to be prolonged on the present basis, but they will be made subject to automatic modifications according to the movement of the index figure. A comparison between the real wages in Denmark and other countries shows that the United States of America is the only country which has higher wages than Denmark.

## DEMAND.

Sales during the last three months have steadily fallen off owing to the decrease in the purchasing power of the public and owing to the higher prices of the raw material. More than 30 per cent. of the cotton manufacturing machinery is stopped. Home trade competition is extremely severe, so much that hardly any margin of profit is left. It is very likely that immediately after Christmas organized short time or a complete stoppage may be agreed upon. Last month a new and vigorous dumping campaign from Germany was initiated, indeed a large number of new firms have established themselves in the main streets of Copenhagen; their goods are all of German make and the firms are supported by German capital which undoubtedly is an attempt to withdraw money from their own country. The selling price of these goods would not cover the actual cost of production in Denmark; there is no doubt that these German goods were made at a time when wages were very low and the rate of exchange higher than at present. This is the only feasible explanation which can be found. Unfortunately the Danish Custom House Tariff does not contain any protection against the importation of dumped goods.

## IMPORTS AND EXPORTS.

The exports, as usual, have been on a very small basis. A considerable increase in the importation of yarns has taken place during the last three months. In this instance the yarns originate from Italy and not from England as on previous occasions; Italy has sold considerable quantities of cheap second-rate yarn in Denmark. The imports of manufactured cotton goods from January to September, 1923, amount to about 5,000 tons.

IMPORTS OF COTTON YARNS INTO DENMARK FROM 1913  
TO 1922, EXCEPT WAR YEARS.

COTTON YARNS, SINGLE AND DOUBLE, GREY FOR WEAVING.

IMPORTED FROM	1913		1914		1919		1920		1921		1922	
	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.
Germany ..	207,900	31.82	310,800	32.12	—	—	21,100	1.63	69,500	13.78	104,800	7.23
Great Britain ..	526,700	56.25	471,200	47.75	2,541,400	87.78	1,026,800	79.15	277,900	34.94	861,300	59.54
Norway ..	—	—	—	—	1,400	0.05	5,400	0.42	—	—	1,300	0.08
Sweden ..	13,100	1.44	29,300	2.06	28,800	0.96	32,800	2.52	83,100	16.42	436,000	30.19
Belgium ..	32,800	5.04	140,900	14.27	4,100	0.14	175,700	13.55	32,800	6.48	25,800	1.76
France ..	—	—	—	—	—	—	—	—	32,200	6.36	6,800	0.46
U.S.A. ..	—	—	—	—	324,200	11.04	24,700	1.00	400	0.07	300	0.02
Other countries ..	45,800	4.89	28,100	2.85	—	—	10,300	0.80	9,900	1.95	10,300	0.72
Total ..	936,300	100	980,200	100	2,919,700	100	1,296,800	100	505,800	100	1,446,800	100

COTTON YARNS, SINGLE AND DOUBLE, DYED FOR WEAVING

IMPORTED FROM	1913		1914		1919		1920		1921		1922	
	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.
Germany ..	131,900	67.61	111,100	62.07	300	0.43	16,100	25.76	13,400	16.66	26,200	29.52
Great Britain ..	50,100	25.68	55,700	31.12	66,800	95.54	36,600	58.56	21,100	26.25	47,300	58.33
Sweden ..	7,200	3.68	9,000	5.08	1,900	2.73	4,200	6.72	2,300	2.85	18,100	14.77
Holland ..	1,900	0.97	1,000	0.56	—	—	—	—	—	—	400	0.46
Belgium ..	1,900	0.97	1,600	0.89	—	—	—	—	—	—	800	0.90
France ..	1,900	0.97	400	0.22	—	—	—	—	43,500	54.10	200	0.22
Other countries ..	200	0.11	200	0.11	000	1.30	5,600	8.08	100	0.14	700	0.80
Total ..	195,100	100	179,000	100	69,400	100	62,500	100	80,400	100	88,700	100

## COTTON YARN, GREY, FOR SEWING, KNITTING AND EMBROIDERY. (in rolls, skeins, etc.)

IMPORTED FROM	1913		1914		1919		1920		1921		1922	
	KG.	PER CENT.										
Germany ..	165,600	49.27	191,100	49.22	—	—	—	—	12,000	8.01	21,200	5.69
Great Britain ..	133,700	39.78	166,300	42.83	102,400	79.79	105,400	80.54	107,400	53.78	204,700	35.02
Sweden ..	—	—	—	—	600	0.11	5,710	1.73	12,900	8.16	3,200	0.56
Holland ..	—	—	—	—	1,000	0.10	4,800	1.43	2,300	1.15	15,900	4.25
Belgium ..	19,500	5.80	18,800	3.56	1,300	0.26	6,000	1.86	4,200	1.6	4,900	1.31
France ..	—	—	—	—	25,000	5.12	88,000	20.55	53,800	26.84	102,900	27.65
Schweiz ..	14,900	4.43	11,400	2.93	2,400	0.45	16,700	5.10	7,100	3.50	18,000	5.11
Other countries ..	2,400	0.72	5,700	1.46	70,700	14.03	8,100	2.48	800	0.40	300	0.08
Total ..	396,100	100	388,300	100	301,200	100	327,700	100	199,700	100	372,100	100

## COTTON YARN, DYED, FOR SEWING, KNITTING AND EMBROIDERY. (in rolls, skeins, etc.)

IMPORTED FROM	1913		1914		1919		1920		1921		1922	
	KG.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.	I.G.	PER CENT.	KG.	PER CENT.	KG.	PER CENT.
Germany ..	149,300	52.97	145,100	32.04	6,800	2.18	18,400	4.4	14,300	11.71	32,300	11.70
Great Britain ..	81,200	28.77	98,800	35.44	237,900	76.13	185,100	82.95	69,100	58.54	119,800	43.41
Belgium ..	17,500	6.20	10,200	3.60	2,100	0.67	13,200	4.42	3,000	2.46	7,100	2.68
France ..	8,900	3.13	5,000	2.12	25,200	8.03	35,500	18.58	21,500	17.81	94,000	30.43
Schweiz ..	22,200	7.86	14,600	5.24	4,300	1.34	23,000	7.69	9,800	8.03	19,100	6.92
Holland ..	2,000	0.72	2,800	1.00	—	—	—	—	1,100	0.90	10,500	3.80
Other countries ..	900	0.33	1,400	0.50	38,000	11.38	5,600	1.88	3,300	2.70	3,200	1.16
Total ..	282,200	100	278,800	100	312,000	100	298,800	100	122,100	100	276,000	100

## ENGLAND.

There has undoubtedly been some improvement in the trade, especially in the American section, but it is probably merely a temporary spurt caused perhaps mainly by the increase in the price of the rupee and by the fear of intending purchasers in view of the threatened shortage in the supply of raw materials.

To some extent the improved state of trade has been reflected in the ballot of the Federation taken at the end of November, as to the desirability or otherwise of continuing short time in the American section. Since March, 1923, there has been a curtailment of production in the American cotton spinning section of 50 per cent. and at the end of November 65.92 per cent. of the total spinning spindles on American cotton declared in favour of a continuance of short time against the requisite percentage of 80; of these 66 per cent., 37.87 per cent. voted in favour of not working more than 24 hours per week during December, and 28.05 per cent. were in favour of working not more than 32 hours per week. In consequence of not having obtained the necessary 80 per cent., each firm is at liberty to work the hours which suit its own purposes. It has been roughly estimated that at the present time (middle of December) some 70 per cent. of the American cotton spinning spindles are working full time and the remaining 30 per cent. are on intermittent short time; exact figures as to the amount of short time are not available.

In the weaving section trade has only improved slightly.

## LANCASHIRE'S PROSPECTS, MR. F. W. TATTERSALL'S VIEWS.

A most important change has occurred in the industry since a month ago, in that values are decidedly dearer. Demand, however, has continued more active, and despite the difficulties experienced in arranging transactions business has been of a healthier character, and the Manchester

market is in a better position. The situation has improved as a result of distinctly freer buying of stock lots of yarn and cloth. Numerous firms have met with very welcome relief. Buyers are now having less of their own way than at any time this year. It remains to be seen whether a really large trade can be done at current prices, and a great deal depends upon Eastern exchange rates. The trade outlook in India is promising, and there is every likelihood of appreciation in the value of the rupee. The political situation in China is still very unsettled, but stocks on the other side are of such a nature that freer buying is becoming absolutely necessary. Owing to the high price of Egyptian cotton piece goods merchants in Egypt are securing better rates. Spinners of yarn are now holding more firmly to quotations than for a very long time back. The output of the mills is being well absorbed, and in the finer counts producers are making fair profits. The facts of the situation warrant a more optimistic feeling, and one is justified in stating that there is every appearance of the worst of the depression being over. Lancashire operatives are now meeting with more employment, and should the revival of demand be maintained there is a danger of a shortage of work-people, especially young persons, in the near future.—(F. W. Tattersall's *Cotton Trade Review*, 21st November, 1923.)

#### BRITISH COTTON YARN AND CLOTH EXPORTS.

The Board of Trade, London, has published the following particulars :

#### COTTON YARN EXPORTS.

	October		Ten months ended October	
	lbs.	£	lbs.	£
1913 .. .	19,959,100	1,401,806	174,720,800	12,423,861
1914 .. .	8,018,500	477,782	159,013,900	10,942,704
1915 .. .	18,711,300	767,492	158,847,900	8,654,118
1916 .. .	18,541,200	1,190,367	148,585,100	11,181,128
1917 .. .	10,484,900	1,476,424	116,676,800	14,047,289
1918 .. .	7,402,100	1,758,162	83,688,500	17,120,080
1919 .. .	14,232,200	2,908,710	134,269,900	27,418,458
1920 .. .	10,876,500	3,837,388	128,824,200	41,404,365
1921 .. .	18,644,800	2,632,127	109,237,400	18,619,754
1922 .. .	16,031,700	2,028,078	174,395,600	22,791,508
1923 .. .	14,738,500	2,078,292	119,268,500	17,336,501

#### SUMMARY.

	1921 lbs.	1922 lbs.	1923 lbs.
Grey, Unbleached .. .	91,738,900	158,060,800	104,880,000
Bleached and Dyed .. .	17,498,500	16,885,800	14,883,500
Total .. .. .	<u>109,237,400</u>	<u>174,395,600</u>	<u>119,268,500</u>

So far this year, compared with last, the principal instances of increased shipments are :

	lbs.	lbs.
Bulgaria .. .. .	2,984,000	Argentine Republic .. 664,000
Roumania .. .. .	1,457,000	United States of America 305,000
France .. .. .	926,000	Sweden .. .. . 897,000

The chief decreases are :

	lbs.		lbs.
Netherlands ..	26,526,000	Madras ..	1,348,000
Bombay ..	12,186,000	Belgium ..	907,000
Germany ..	7,790,000	Burmah ..	729,000
China (including HongKong) ..	5,617,000	Dutch East Indies ..	615,000
Bengal, Assam, Bihar and Orissa ..	2,491,000	Straits Settlements and Federated Malay States ..	506,000
Switzerland ..	1,778,000	Denmark ..	475,000

### COTTON CLOTH EXPORTS.

The following is a comparative table of cloth shipments from the United Kingdom for the past 11 years :

	October	Ten months ended October
	yards	yards
1913 ..	630,937,100	8,724,748
1914 ..	370,711,500	4,937,951
1915 ..	307,322,200	5,167,888
1916 ..	386,228,900	7,251,788
1917 ..	382,821,100	9,845,169
1918 ..	226,110,200	10,544,707
1919 ..	393,246,800	18,057,883
	square yards	square yards
1920 ..	304,911,900	25,256,976
1921 ..	342,411,500	12,289,087
1922 ..	353,854,000	11,217,119
1923 ..	371,289,700	12,380,581

### SUMMARY.

	1921	1922	1923
	sq. yards	sq. yards	sq. yards
Grey, Unbleached ..	725,219,800	1,233,404,800	1,070,797,700
Bleached ..	698,358,000	1,086,141,900	1,075,498,800
Printed ..	858,015,600	440,696,200	536,066,900
Dyed or Manufactured from Dyed Yarns ..	432,159,200	661,689,800	786,147,900
Total ..	2,208,752,600	3,421,932,700	3,468,506,300

The chief cases of larger takings, so far this year, compared with last, are :

	sq. yards		sq. yards
Bombay ..	91,704,000	Madras ..	15,100,000
United States of America ..	64,532,000	Chile ..	14,736,000
Argentine Republic ..	29,129,000	Cuba ..	14,573,000
British West Africa ..	19,218,000	Colombia ..	18,619,000
Straits Settlements and Federated Malay States ..	18,216,000	Canada ..	11,295,000
Venezuela ..	15,288,000	Ceylon ..	10,308,000

The principal decreases are :

	sq. yards		sq. yards
Germany ..	80,587,000	Netherlands ..	14,184,000
China (incl. Hong Kong) ..	78,652,000	Siam ..	8,801,000
Switzerland ..	65,770,000	Morocco ..	8,859,000
Australia ..	42,840,000	Burmah ..	6,546,000
France ..	21,491,000	British South Africa ..	5,884,000
Belgium ..	20,660,000	Japan ..	5,845,000

The BRITISH BOARD OF TRADE FIGURES of Yarn and Cloth Exports for November, 1923, are given below :

(000's omitted )

			1923		1922		1921
Yarn..	..	.. lbs.	14,619	..	15,113	..	20,619
" value ..	..	.. £	1,981	..	1,988	..	2,893

PIECE GOODS:

Grey ..	..	sq. yds.	120,605	..	151,722	..	125,484
" value ..	..	.. £	2,865	..	3,626	..	3,133
Bleached ..	..	sq. yds.	104,825	..	120,206	..	134,721
" value ..	..	.. £	2,948	..	3,428	..	4,242
Printed ..	..	sq. yds.	40,200	..	51,738	..	38,708
" value ..	..	.. £	1,877	..	2,003	..	1,819
Dyed ..	..	sq. yds.	75,006	..	73,039	..	64,720
" value ..	..	.. £	3,634	..	3,780	..	3,764
Total piece ..	..	sq. yds.	840,697	..	898,726	..	863,633
" value ..	..	.. £	11,325	..	12,837	..	12,050

Below we show the shipments of piece goods to three of the principal markets and to all countries for each month of the present year :

Square yards (000's omitted)

1923	China	Bombay	Bengal	All countries
January ..	17,784	.. 52,781	.. 98,508	.. 309,988
February ..	15,999	.. 28,732	.. 82,615	.. 342,558
March ..	15,869	.. 30,110	.. 76,827	.. 337,411
April ..	16,170	.. 30,728	.. 63,718	.. 316,279
May ..	15,481	.. 48,353	.. 82,529	.. 409,962
June ..	14,608	.. 41,513	.. 41,778	.. 300,669
July ..	18,355	.. 38,798	.. 37,427	.. 316,083
August ..	24,166	.. 55,198	.. 58,208	.. 329,946
September ..	24,636	.. 43,188	.. 62,575	.. 344,319
October ..	28,850	.. 44,255	.. 57,773	.. 371,290
November ..	22,140	.. 29,927	.. 69,288	.. 349,697

The month's cotton imports were 1,713,017 centals of 100 lbs., valued at £12,876,738, as against 1,829,627 centals, valued at £11,640,658, in 1922, when prices were lower. Eleven months' imports have been 10,512,169 centals, as against 12,266,053.

These particulars were published in London at the time of going to press and a detailed analysis could not be prepared in time.

## TEXTILE MACHINERY SHIPMENTS.

The following is a comparative table of textile machinery shipments from the United Kingdom for the past 11 years :

	October	Ten months ended October		
	tons	£	tons	£
1913 .. ..	16,600	755,744	147,125	6,613,700
1914 .. ..	8,729	221,823	107,802	5,306,427
1915 .. ..	5,039	804,418	50,464	2,730,584
1916 .. ..	5,697	427,013	50,474	3,453,286
1917 .. ..	8,516	826,840	42,573	3,576,987
1918 .. ..	2,979	383,102	30,800	3,259,804
1919 .. ..	6,590	845,432	52,406	6,586,906
1920 .. ..	8,758	540,098	39,574	5,331,313
1921 .. ..	18,656	2,128,565	125,293	20,433,141
1922 .. ..	15,022	1,964,827	128,053	17,648,837
1923 .. ..	10,380	1,147,099	119,049	13,686,131

A comparative detailed table of the weights of textile machinery shipments for the 10 months, January to October, of the three years, 1921, 1922 and 1923, is shown below :

	Ten months ended October		
	1921 tons	1922 ton	1923 tons
Russia .. .. ..	—	..	74
Germany .. .. ..	307	1,817	656
Netherlands .. .. ..	2,085	1,788	2,302
France .. .. ..	20,200	10,134	8,375
Other countries in Europe .. .. ..	11,114	9,886	10,388
China (including Hong Kong) .. .. ..	12,585	17,047	6,598
Japan .. .. ..	18,130	18,708	15,174
United States of America .. .. ..	4,914	5,583	5,364
Countries in South America .. .. ..	4,750	4,267	5,889
British East Indies .. .. ..	46,105	49,916	50,389
Australia .. .. ..	1,482	2,254	3,615
Other Countries .. .. ..	3,762	1,600	4,040
	<u>125,293</u>	<u>..</u>	<u>119,049</u>
SUMMARY.			
	1921 ton	1922 ton	1923 ton
Spinning .. .. ..	93,623	100,768	94,795
Weaving .. .. ..	24,198	18,055	19,509
Other .. .. ..	7,477	4,283	4,743
Total .. .. ..	<u>125,293</u>	<u>..</u>	<u>119,049</u>

## THE BRITISH EMPIRE AND FOREIGN COUNTRIES.

The Board of Trade Journal of November 8th gave the following tables of Great Britain's GENERAL Trade :

## PERCENTAGES OF IMPORTS FROM VARIOUS SOURCES.

Consigned from	July-Sept., 1923	Oct., 1922, to Sept., 1923	Year 1913
Europe .. .. ..	37.8	38.2	40.4
United States .. .. ..	15.9	19.6	18.4
South and Central America .. .. ..	10.7	10.8	10.0
British India .. .. ..	7.0	6.0	6.8
Self-Governing Dominions .. .. ..	14.1	16.8	18.3
Other British Countries (except Hong Kong) .. .. ..	5.4	5.3	5.8
Other Countries .. .. ..	9.1	8.8	6.8

## PERCENTAGES OF EXPORTS (U.K. GOODS) TO VARIOUS DESTINATIONS.

Consigned to	July - Sept., 1923	Oct., 1922, to Sept., 1923	Year 1913
Europe .. .. .. ..	38·8	34·2	34·4
United States .. .. .. ..	7·3	8·0	5·6
South and Central America .. .. ..	9·4	8·8	10·6
British India .. .. .. ..	11·0	12·2	13·4
Self-Governing Dominions .. .. ..	18·6	18·0	17·5
Other British Countries (except Hong Kong) .. .. .. ..	5·5	5·7	5·4
Other Countries .. .. .. ..	14·4	13·1	13·1

## FINLAND.

Since our last report trade has become worse, partly owing to the exceptional wet summer and autumn weather, and partly in consequence of increased foreign imports. The mills are, however, still working full time on a 48-hour basis.

The following are the exports and imports of cotton goods within the last three months :

	EXPORTS				IMPORTS			
	July	August	September	tons	July	August	September	tons
July .. .. .. ..				1	..	..	..	98
August .. .. .. ..				5	..	..	..	152
September .. .. .. ..				3	..	..	..	212

## FRANCE.

The general situation has not improved during the last three months, although the stocks may be small and the industry may have orders for two or three months ahead, prices continue to be on the low side. The rise in the price of cotton and the incessant fluctuations in the rate of exchange render the position extremely difficult.

Short time is not yet introduced, nevertheless, one may be justified in asking whether, in the near future, on account of the high prices of the raw material, it will not become necessary to bring about a general reduction of the output.

## WAGES.

Wages have been increased in several cotton centres (Roubaix-Tourcoing and Vosges); these represent about 4 to 5 per cent. increase.

Yarn prices have risen considerably since our last report in the BULLETIN, due solely to the higher price of cotton :

			Warp 28's Calico	$\frac{1}{2}$ 20 x 20 (per kilo)	$\frac{1}{2}$ 20 x 20 (per metre)
15th September .. .. .. ..	Fr. 16·50 ..				1·92
17th November .. .. .. ..	Fr. 20·30 ..				2·30

## EXPORTS OF YARN AND CLOTH DURING THE FIRST NINE MONTHS OF 1923

(For particulars you are referred to the original French report which follows).

## ETAT DU MARCHÉ.

La situation générale des affaires ne s'est pas améliorée durant le dernier trimestre. Bien que les stocks soient peu importants et que l'industrie soit encore engagée pour deux ou trois mois, les prix continuent à être

mauvais. La hausse de la matière première et les fluctuations incessantes du change rendent les affaires nouvelles difficiles.

On ne constate pas encore de chômage. Toutefois il est permis de se demander si, dans un avenir prochain, en raison des hauts prix du coton brut, on ne se verra pas dans l'obligation d'envisager une réduction de la production.

#### SALAISONS.

Des relevements de salaires ont été effectués dans plusieurs centres cotonniers (Roubaix-Tourcoing et Vosges). Ils représentent une augmentation d'environ 4 à 5 pour cent.

#### PRIX.

Depuis le dernier BULLETIN les prix ont subi une hausse sensible due uniquement aux prix élevés du coton brut :

			Chaine 28 (le kilo)	Calicot 3 4 20 20 (le mètre)
15 Septembre ..	..	..	Fr. 16.50 ..	Fr. 1.92
17 Novembre ..	..	..	Fr. 20.30 ..	Fr. 2.30

#### EXPORTATION DE FILÉS ET TISSUS DE COTON PENDANT LES 1<sup>er</sup>, 2<sup>me</sup> ET 3<sup>me</sup> TRIMESTRES DE 1928 :

	1 <sup>er</sup> FILÉS DE COTON.	1 <sup>er</sup> trimestre	2 <sup>me</sup> trimestre	3 <sup>me</sup> trimestre
(a) Chiffre total (toutes catégories) .. en Q.M.	18,173		20,848	18,726
(b) Décomposition par principales catégories de filé :				
Fils simples	Ecrus .. .. .. en Q.M. 6,475	6,924	8,272	
	Blanchis .. .. .. "	456	369	
	Teints ou chinés .. .. .. "	462	783	1,008
	Glacés .. .. .. "	398	556	475
Fils retors	Ecrus .. .. .. "	1,281	2,083	1,052
	Blanchis .. .. .. "	912	1,146	1,114
	Teints ou chinés .. .. .. "	4,286	4,524	2,380
	Glacés .. .. .. "	4,104	4,354	4,095
	2 <sup>me</sup> TISSUS DE COTON.	1 <sup>er</sup> trimestre	2 <sup>me</sup> trimestre	3 <sup>me</sup> trimestre
(a) Chiffre total (toutes catégories) .. en Q.M.	88,341	107,065	108,840	
(b) Décomposition par principales catégories de tissu :				
Ecrus .. .. .. en Q.M.	11,839	16,413	20,088	
Blanchis ou fabriqués avec des fils				
blanchis .. .. .. "	11,002	15,794	19,158	
Bandes pour panscments écrues ou				
blanchies .. .. .. "	1,132	685	622	
Teints .. .. .. "	32,981	46,934	38,324	
Fabriqués avec des fils teints .. .. .. "	4,081	4,221	4,050	
Imprimés .. .. .. "	3,446	8,694	4,189	
Velours { 26 fils ou moins .. .. .. "	179	218	147	
plus de 26 fils .. .. .. "	493	483	399	
Couvertures .. .. .. "	7,694	5,371	9,500	
Bonneterie .. .. .. "	2,971	8,208	8,311	
Etoffes mélangées .. .. .. "	1,350	1,520	1,894	

## HOLLAND.

#### LABOUR DIFFICULTIES IN THE COTTON INDUSTRY.

Recently the Employers' Federation approached the trade unions with a view to obtaining a reduction in the cost of production, either by a reduction of wages or by a prolongation of the present working week of 48 hours. The employers proposed a reduction in the standard wages

of 10 per cent. with a working week of 53 working hours, which would mean that the weekly earnings of an operative would practically remain unchanged. The trade unions refused to accept these proposals and negotiations came to end. In view of the gradual falling off of trade during the autumn months, the employers considered it imperative to bring about a reduction in the cost of production and they gave notice of a 10 per cent. reduction in the wages to take effect after 27th October. The trade unions refused to agree to this, and a strike was begun in one of the small mills of Messrs. Van Heek & Company, Enschede, involving about 230 hands. The employers are organized in three local associations, and have come to a special agreement on this question to the effect that if there is a conflict in one of the mills of any member of the associations the local association will enforce a lock-out after a period of four weeks, and if then a settlement is not arrived all the other associations will proclaim a lock-out after a further lapse of four weeks. In accordance with this agreement the Enschede mills, comprising 19 firms with 11,000 hands, were stopped on November 24, and if no settlement is come to the other firms will follow suit on December 22, and in that case 39 firms, employing over 21,000 operatives, will be involved.

The weaving sheds in Almelo and also some bleach works and a few of the small mills are not members of these three associations and are therefore not concerned in this lock-out.

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## ITALY.

Owing to the persistent enormous rise in American cotton the demand for yarn by the weavers has become greater, and spinners have secured sufficient orders to keep their mills running for a few months.

The prices secured, although on a higher basis, are, however, still below the present cost of production.

The mills spinning East Indian cotton are working full time and with a better margin, especially as they bought their cotton at favourable times.

No organized short time is in force, but several mills—especially in the American section—are working only five days per week. The weaving section is worse off, as they are rather short in their yarn purchases, which they have now to cover on a higher basis, whilst it is practically impossible to secure better terms in the sale, especially of grey goods.

The demand for export is very slack.

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## SWEDEN.

Since the last issue of the INTERNATIONAL COTTON BULLETIN conditions here have become considerably worse. After the big rise which has taken place in the price of raw cotton, orders for yarn became very scarce and only a very small business could be turned over. The demand for yarn seems to have disappeared altogether.

The cloth market is, if it were possible, still more depressed, for certain lines are accumulating in the mills. The failure of the grain crops in a large part of Sweden is making its influence felt already and it will be felt more acutely later on.

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## SWITZERLAND.

Generally speaking, trade has improved during the last two months.

## CHINA

*The British Board of Trade Journal* contained in its issue, November 15, 1923, a well-informed article, from which we extract the following :

During the 12 months which ended in June last trade in China has continued to struggle on under the same adverse conditions—internecine strife, administrative chaos and unchecked lawlessness in the interior districts—as experienced in the previous year, and only the keen business instincts and adaptability of the Chinese merchant have prevented a complete breakdown of the machinery of commerce. The situation in all the above respects continues to grow worse instead of better, and was lately intensified by a particularly flagrant case of robbery from a mail train and abduction of both native and foreign passengers by bandits, who compelled the Government to accede to nearly all their demands before their release. In addition to the dangers from brigands on the land routes and waterways, and piracies (both of steamers and sailing craft) on the sea coast the merchant transporting his goods from one part of the country to another has to run the gauntlet of an ever-increasing swarm of tax collectors, civil and military, whose exactions are even more to be dreaded. As an instance of such official interference with trade, reference may be made to the recent action of the provincial authorities of Chekiang in imposing a tax of 20 per cent. *ad valorem* on all cigarettes sold in that province, in direct defiance of Treaty stipulations on the subject and of a special arrangement concluded with the Central Government little more than a year ago.

At the same time, in spite of these disorders, conditions in China at the present time would seem to offer favourable prospects for a trade revival. In most parts of the country crops are reported to be good, money is reasonably plentiful, and the internal markets are bare of stocks. Any definite evidence that steps were being taken to restore order and to assure some measure of protection to merchants conveying their goods to trading centres in the interior would undoubtedly be followed by a period of keen business activity. Unfortunately there are no signs of improvement and the various provincial leaders continue their preparations for a renewal of hostilities. There is every reason to fear that the record of trade in the current year will be at least as disappointing as that for the past 12 months.

### COTTON PIECE GOODS.

British merchants report that the year was one of practically unbroken depression in this trade, owing almost entirely to the fact that the country has been in a state of exceptional disturbance. In former years political affairs in China did not seriously interfere with the course of trade, but of late the reverse has been the case; the disappearance of an effective central government and the seizure of power within their own districts by irresponsible officials have turned loose upon the country large numbers of uncontrolled soldiery and bandits who at different times hold large sections of the country at ransom, and whose exactions in the form of cash from such bodies as the native chamber of commerce, guilds and the mercantile and moneyed classes generally, have, to a great extent, crippled the purchasing power of those classes who participate in the trade in imported cloth. The year 1922 has been worse than any preceding one in this respect.

The spring demand, which started with only small stocks on hand, was of a very hesitating character owing to the daily fear in the native minds of impending hostilities between Chang Tso Lin and Wu Pei Fu, which eventually did not take place till April. There was no serious buying movement from any quarter except Newchwang for a short spell, the first steamers for that port having taken about 7,000 packages in all of piece goods and yarn. A good proportion of this, however, was known to consist of coarse grey cloth in Shanghai mills to be used for military clothing and other purposes by the northern armies so that the trade in that respect did not represent a commercial demand for consumption by the populace. There was a short spell of genuine trade during March, when it was thought that hostilities might be avoided, but early in April the military commenced commandeering the lighters and other craft at Hankow as well as the rolling stock on the railways, and exacted enforced "loans" from the various commercial bodies there, while, at the same time, the northern armies began to assemble round Peking. Demand from all quarters came to a stop at once as it was not then known exactly where hostilities would take place, and in the middle of April, the Shanghai weekly auctions were abandoned—always a sure sign that trade has reached its worst. About that time the market was becoming disturbed by substantial, continuous arrivals of piece goods purchased ahead during the previous autumn and winter, all of which had to be put into go-downs with little prospect of an early distribution to the interior. The financing of these goods was a matter of great difficulty during the summer months, and it was not until the late autumn that any inroads were made into them of any importance. The saving point in the whole situation when the heavy accumulation of stocks and absence of demand might have created another serious crisis was that during the spring (and indeed the whole year) the statistical position of American cotton remained exceedingly strong and that the danger of a fall in prices in overseas markets was eliminated; all the goods arriving had been cheaply bought and could not have been replaced cheaper at any time.

The latter half of the year was even more depressed than the first, and a detailed account of each month's trade would be useless. Kiukiang was looted with heavy losses to merchants, unusually destructive typhoons were experienced, serious floods leading to widespread famine occurred along the Chientang River in Chekiang Province, and the usual lawlessness, signalized by firing on steamers, began in the Yangtse Gorges, compelling the Szechuen merchants to resell on this market the goods which they had previously bought for shipment to their provinces. In spite of all these troubles, October brought a fairly brisk offtake of cloth, but in November, brigandage became even worse than usual in Honan Province, a number of foreigners were captured and held as hostages, and the trade of the whole of central China was consequently held up. The year closed with no demand whatsoever, but fortunately with very small stocks on hand and practically nothing whatever booked for arrival during 1923. Replacing costs are anything from 10 per cent to 25 per cent. higher than values ruling here in December, so that if any semblance of peace and order is restored so that the merchants may conduct their trade with some little security, there should be a strong market with considerably higher prices all round. The world is faced with a famine in cotton until the new American crop is marketed in the autumn of 1923, so that there is every inducement to an enhancement of tael values in China,

but the primary conditions necessary are a restoration of governmental functions in some form or other so long as security is recovered along the trade routes of the country.

During the present year, business in piece goods has been overshadowed by the long-standing political disturbances. While deliveries compare favourably with those of last year, the first four months have certainly not been profitable either for foreign importers or native merchants. January opened with threats of a drought in the central provinces, and though this fortunately was relieved by rain and snow in February, the demand for piece goods was very unsatisfactory up to the end of April. During May the Japanese boycott began and was gradually more strongly supported in up-country markets, with the exception only of Manchuria. This resulted in more enquiry for English piece goods, but replacing costs were considerably above local values, with the result that while a certain amount of business has been brought to book, more especially where manufacturers were urgently in want of orders, many enquiries were not workable, and to-day Manchester prices, on the whole, are about 10 per cent. above local ideas.

In June, 1923, the market was quiet owing to the approaching native settling day, but the outlook was more promising. Stocks, especially of grey and whites, were diminishing rapidly, and should demand continue on the same scale, buyers would have to pay higher prices, as since the beginning of the year importers have seen little inducement to lay down supplies on their own account.

#### BRITISH TRADE WITH CHINA.

The Customs figures for 1922 show a decrease of about 4½ million taels in the value of imports from the United Kingdom, but from the point of view of local British firms trade has been much more unsatisfactory than is indicated by this comparatively small falling-off in the Customs figures. The past 12 months have, in fact, been a very trying period for British traders in China, few of the firms doing a general import and export business being in a position to show a profit on the year's working, whilst many have suffered heavy losses, and as the China merchant houses are the main channels through which goods of British manufacture reach this market, their difficulties must ultimately react on the manufacturer in the United Kingdom. An example of the difficulties with which firms in China have had to contend is to be found in the fact that one of the oldest and most highly respected British houses in this country has recently been compelled to go into liquidation, this step being rendered necessary (it is understood) through heavy losses in connection with piece-goods business during the past two years. These adverse trade conditions are, of course, not peculiar to British traders in this country, but are shared by all foreign merchants, and it is at least satisfactory to find that Great Britain's share of China's trade is being fairly well maintained and that British goods are holding their own in competition with those from other countries. In the trades which have a special interest for British manufacturers—cotton piece goods and machinery—competition tends to increase, from Japan and the native mills on the one hand and from the United States and Germany on the other, but there is no evidence to show that our strong position in these lines is as yet seriously threatened. Future prospects for British trade in China and,

in fact, for foreign trade generally, are mainly dependent upon the restoration of some semblance of ordered government throughout the country.

*Cable from U.S.A. Trade Commissioner G. C. Howard, Peking, October 22.*

"China's trade has returned to normal with a healthy undertone prevailing. Russian economic organizations in North Manchuria have increased their activities. The Moscow Textile Syndicate has opened a branch office in China and already disposed of the first shipment of goods. The cotton crop of China is now estimated to yield a larger amount than last year. The sixth Canton silk crop is estimated as less than 5,000 bales. General business conditions are favourable.

(*Commerce Reports, U.S.A.*)

## GERMANY

As this country is not affiliated with the International Federation we have to rely on press reports as to the state of trade. The correspondent of the *Manchester Guardian Commercial* is generally correct in his views, and we give those published November 15 :

All branches of the German textile industry are complaining bitterly of a complete lack of business. German textile goods, which are largely dependent upon foreign raw material and semi-manufactures, have for some time been tending to rise above world market prices. They have also been severely hit by the crippling of purchasing power within the country, and cannot make up for this abroad because their goods are in many cases too dear abroad also. The lack of business is itself increasing the cost of manufacture, and to this has to be added the numerous anti-dumping duties and the premiums for risk necessitated at every stage of production by the continuing depreciation of money. Thus the industry is losing now, in competition with the countries with stable currencies, even those markets and faithful customers on whom it has always been able to depend. Existing contracts at home and abroad are also being cancelled more and more in an alarming way. Only in the Balkans is any good export business being done at present.

Employment is bad in every branch of the industry. Cotton spinning and manufacturing in the occupied area has for some time been very slack. The hope of a revival of business after the cessation of passive resistance has not yet been realized, so that it is feared in the occupied area that the stagnancy may continue for a very long time.

This view is not entirely shared by other branches of the textile industry, especially the ready-made clothing industry in which a revival is hoped for after the introduction of the new currency, which will allow of close calculation and of the abolition of the premiums for risk. The natural result of poor business has been many unavoidable discharges of workers and reductions of hours, not only in almost all the factories and tailoring shops, but also in the wholesale trade, where in many instances only half-time is being worked. Owing to the dearth of capital

it is almost impossible to buy new machines, so that the German textile machinery industry is almost exclusively dependent on export.

There has been violent disagreement over the question whether foreign cotton yarn shall be admitted into Germany or not. It has been decided that import shall be permitted so long as the yarn is cheaper than German yarn of the same quality, and on condition that the importer can show that he has export orders for cotton cloth for which the yarn has to be used. It may be expected that this new decision will especially benefit the import of English yarn for Saxon manufactures.

The special correspondent of *The Textile Recorder* reports as follows on the German textile industry :

Many of the textile manufacturers, particularly the firms with limited means, have recently changed their methods, and instead of manufacturing on their own account, they take orders from foreign manufacturers, including British and American firms. This is clear proof of the bad state of affairs. The principal reason for this new practice is deficiency of capital. The firms have mostly spent their own means, and, with the banks limiting or refusing credit, they can no longer act on their own account.

Business in all textile branches is depressed. Only recently part of the public have been able to give some orders, because the payment of salary to employees (of Government and private concerns) has put into circulation large amounts of money. This, again, is proof of the general trade depression, for there is no longer any regular or natural course of business. Foreign orders have come in at a slightly quicker and more bountiful rate. But this, too, is a passing event, because prices here have risen above the international level of prices.

The result is either stoppage of manufacturing, the men being dismissed, or a considerable reduction of work hours in order to avoid such dismissal as much and as long as possible. There is danger ahead, for in many parts of Germany, notably in Saxony, a centre of the textile industry, public disorders are going on or are preparing on account of want of employment. Most firms work only three days in the week. In order to improve matters efforts are on foot to increase exports. But that is a very difficult enterprise. Everywhere in the trade one hears complaints about progressing disappearance of German goods in foreign markets owing to the successful competition of foreign merchants and manufacturers, and, mainly, because of high prices in this country. Many foreign visitors and buyers, who came to Germany, state that they cannot buy because German articles are more expensive than those made in other countries.

The following is an extract from the *British Board of Trade Journal*, November 22. The article is based on the reports of the Prussian Chambers of Commerce on trade and industry in October. :

" Business in the wholesale cotton trade declined considerably, being now almost at a complete standstill. The depreciation of the mark involved buyers in great difficulties, so that a large number of them could only fulfil liabilities in respect of earlier purchases with the greatest

effort. The cloth industry suffered also considerably from the currency depreciation. There was practically no demand either in the wholesale or in the retail trade. In the wholesale underwear trade no goods could be sold, even at prices involving a loss, as, owing to lack of receipts, retailers were not in a position to buy. The business of the home workers suffered greatly for the same reason."

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## U.S.A.

As regards the Cotton Industry the most telling report on the state of trade is found in the Monthly Cotton Consumption Table, as published in the Statistical Section of this BULLETIN, Table No 11, page 271.

The National City Bank of New York in a recent report on the general business conditions said: "The business situation has shown no pronounced change in the past month, but the trend of developments and opinion supports the view that while there will be no such outburst of activity as characterized the markets last spring, good business is assured throughout the remainder of the year and likely to continue beyond." The same report writes with regard to the American textile industries: "In the textiles conditions are much confused. In cotton goods this results from uncertainty about the size of the crop of raw cotton and whether consumers will buy the goods freely on the basis of present costs. The mills could book plenty of orders at prices that would have been acceptable two or three months ago, but they cannot cover their requirements for raw material and get out even on that basis now. Illustrating changes since last April, when in a scare about the crop raw cotton went above 31 cents per lb., 64/60 print cloths which sold then as high as 11 $\frac{1}{4}$  cents dropped to 8 $\frac{3}{8}$  cents and are now about 10 cents. In the latter part of July the price of raw cotton dropped below 22 cents per lb. and since then has been above 30 cents for a day or so, and is now about 28 $\frac{1}{2}$ . Obviously these are difficult conditions for manufacturers of cotton products and traders in them. Nevertheless, cloth production is much above what it was several months ago. The consumption of cotton in August was 491,604 bales, against 461,575 in July and 527,404 in August last year."

The National Industrial Conference Board, New York, has completed an investigation down to July, 1923, which shows that American labour is receiving higher "real wages" than at any time since 1913, not even excepting the peak period of 1920. The cost of living in July, 1923, was 61.9 per cent. above 1914 level and this was a decline of 20.8 per cent. from the peak of high prices in July, 1920, the chief item holding up living costs in cities is rent which is 75 per cent. above 1914 level.

On the American Cotton Crop the October report of the National City Bank states: "This is the third short crop, and the carry-over is small; moreover, the most disturbing thing about it is that it has been grown upon the largest acreage ever harvested, according to the Govern-

ment estimate, which tells the story of the boll-weevil ravages and the menace of that insect in the future. One thing, however, the boll-weevil has effectually accomplished; it has eliminated the possible over-production of cotton as a factor in the agricultural situation. Although, of course, the cost of production is high by reason of the low yield per acre, the income of the cotton growers probably never has been as high, outside war years, as it will be this year. Texas with its good crop is facing prosperity, at least so far as the cotton farmers are concerned."

#### EXPORTS OF COTTON YARNS AND CLOTHS FROM THE UNITED STATES IN SEPTEMBER.

No substantial change in the volume of this country's exports of cotton yarns and cloths occurred from August to September, according to the detailed figures issued this week by the Bureau of Foreign and Domestic Commerce, the quantities of both yarns and cloths exported in September being slightly smaller than those of record for August, but substantially larger than those reported for July. On the other hand, the September, 1923, exports of cotton cloths were less by one-third than those for September, 1922, while the month's outward movement of cotton yarns was smaller this year than last year to almost the same extent. From the standpoint of value, however, the comparison is much less unfavourable owing to the higher prices obtaining this year for all products of the cotton industry. Thus, the total value of all cotton manufactures exported in September, 1923, was \$10,885,362, against \$12,557,344 for September, 1922.

Exports of all classes of cotton cloths from the United States in September totalled 38,169,420 sq. yds. valued at \$6,230,422, as compared with 38,556,377 sq. yds. valued at \$6,500,817 in August and with 52,152,878 sq. yds. valued at \$7,740,382 in September, 1922. For the nine months ended with September this year the exports of cotton cloths aggregated 347,691,866 sq. yds. valued at \$59,965,050, against 449,478,277 sq. yds. valued at \$63,708,817 exported during the first nine months of last year.

The September, 1923, exports of carded and combed cotton yarns, and of sewing thread and special yarns, totalled 999,297 lbs. valued at \$631,838, as compared with 1,155,816 lbs. valued at \$658,854 exported in August and with 1,532,289 lbs. valued at \$802,956 exported in September, 1922. During the nine months ended with September, 1923, there were exported from the United States cotton yarns of all descriptions to the amount of 10,776,742 lbs. valued at \$6,694,718, against 13,533,205 lbs. valued at \$6,634,119 exported during the first nine months of 1922.

In addition to the above-described exports of cotton yarns and cloths there were also exported from the United States in September this year 329,956 dozen pairs of cotton hosiery valued at \$641,723, compared with 384,803 dozen pairs valued at \$713,128 exported in September, 1922. For the nine months ended with September this year the exports of cotton hosiery totalled 4,225,801 dozen pairs valued at \$8,766,889, against exports during the same period last year totalling 3,480,593 dozen pairs valued at \$6,615,434.

**U.S.A. EXPORTS of Raw Cotton and Manufactured Cotton Goods  
for nine months ending September 1922 and 1923.**

(Compiled from the Monthly Summary of Foreign Commerce, Depart. of Commerce,  
Bureau of Foreign and Domestic Commerce.)

Unit of Quantity	Nine months ending September			
	1922		1923	
	Quantity	Dollars Value	Quantity	Dollars Value
Cotton unmanufactured :				
Long staple (1½ in. or over) :				
Sea-island .. . . . Bale	491	72,891	16	
Pound	190,562		6,975	2,643
Bale	701,838		408,884	
Other .. . . . Bale	386,066,842	76,809,017	263,879,882	78,586,610
Pound	3,054,956		2,358,110	
Short staple (under 1½ in.) .. . . . Bale	1,561,988,161	311,444,203	1,223,340,893	341,581,060
Pound	91,674		34,808	
Linters .. . . . Bale	45,541,226	1,892,137	17,890,816	1,457,198
Pound				
Total cotton unmanufactured .. . . . Bale	9,848,939		2,891,825	
Pound	1,973,781,821	390,218,248	1,505,118,066	410,577,511
Exported to :				
Austria .. . . . Bale	4,111	448,285	100	
Pound	2,121,210		52,865	13,836
Belgium .. . . . Bale	99,257	10,947,640	83,136	
Pound	52,866,003		44,267,328	12,206,035
Czecho-Slovakia .. . . . Bale	799	94,318	250	
Pound	423,873		128,849	41,162
France .. . . . Bale	467,612	50,007,885	351,229	
Pound	244,359,593		185,723,592	51,156,840
Germany .. . . . Bale	889,212	82,688,704	611,760	
Pound	450,982,504		331,284,464	91,182,565
Italy .. . . . Bale	358,578	38,772,230	313,857	
Pound	184,267,672		164,177,125	40,304,816
Netherlands .. . . . Bale	57,033	5,813,584	44,234	
Pound	20,490,377		23,284,717	6,424,512
Norway .. . . . Bale	6,329	658,604	8,230	
Pound	3,818,047		1,701,616	454,604
Poland and Danzig .. . . . Bale	9,812		13,755	
Pound	5,228,349	1,008,952	7,322,941	2,140,012
Portugal .. . . . Bale	10,134	976,680	18,060	
Pound	5,186,169		10,200,365	2,682,568
Spain .. . . . Bale	204,175	22,181,306	101,465	
Pound	109,377,773		55,195,409	15,239,615
Sweden .. . . . Bale	33,527	3,485,929	40,527	
Pound	17,068,280		21,635,282	5,841,871
Switzerland .. . . . Bale	1,250	142,585	395	
Pound	666,370		208,767	57,080
United Kingdom .. . . . Bale	1,170,500	120,194,470	688,366	
Pound	596,304,040		354,212,223	87,182,286
Other Europe .. . . . Bale	23,530		33,906	
Pound	12,431,780	2,511,043	18,541,378	5,354,540
Canada .. . . . Bale	133,017	12,450,070	126,081	
Pound	67,484,146		64,201,287	17,007,854
Mexico .. . . . Bale	3,676	490,604	11,927	
Pound	2,864,772		5,933,802	1,652,098
China .. . . . Bale	28,568	2,661,034	12,735	
Pound	14,478,668		6,637,231	1,862,323
Japan .. . . . Bale	330,879	34,120,007	405,101	
Pound	171,848,264		200,535,169	50,442,827
Other countries .. . . . Bale	5,858	539,179	1,711	
Pound	2,968,733		873,676	320,587
Cotton manufactures (total) —		108,137,074		104,862,238
Cotton mill waste .. . . . Pound	49,302,863	4,948,872	37,309,451	4,848,844
Cotton rags, except paper stock .. . . . "	6,163,308	365,484	9,709,945	545,616
Cotton yarn, thread and cordage :				
Carded yarn, not combed ..	7,818,508	2,636,845	5,899,254	2,657,637
Combed yarn .. . . . "	4,581,661	2,584,053	3,447,477	2,447,900
Sewing thread .. . . . "	1,204,039	1,298,187	1,258,914	1,398,439
Crochet, darning and embroidery cotton .. . . . "	188,907	170,084	178,097	195,742
Twine and cordage .. . . . "	2,540,777	1,010,400	2,406,204	1,020,006
Cotton cloth (total) .. . Sq. yd.	449,478,277	63,708,817	347,691,866	59,965,050
Duck (total) .. . . . "	8,467,712	3,277,273	6,708,918	3,042,459

U.S.A.

## EXPORTS—Continued.

Unit of Quantity	Nine months ending September			
	1922		1923	
	Quantity	Dollars Value	Quantity	Dollars Value
Unbleached	Sq. yd.	6,488,839	2,622,805	5,099,490
Bleached		1,452,186	482,742	799,801
Coloured	..	327,207	172,226	609,627
All other cloth:				
Unbleached	Sq. yd.	142,251,385	15,175,807	76,039,634
<i>Exported to:</i>				
Greece	..	2,292,184	264,224	2,308,834
Rumania	..	4,013,973	476,065	1,013,500
Turkey in Europe	..	14,316,060	1,320,080	3,597,102
Canada	..	6,066,811	589,149	4,840,150
Salvador	..	5,807,295	488,449	5,024,025
Other Central America		10,696,093	1,031,622	9,169,690
Mexico	..	557,093	83,578	341,201
Jamaica	..	4,085,459	823,809	3,877,326
Cuba	..	1,440,843	160,719	3,584,169
Dominican Republic	..	698,834	66,158	1,342,918
Haiti	..	4,021,574	398,505	2,861,521
Other West Indies	..	1,241,891	121,185	502,332
Argentina	..	10,145,580	1,923,240	4,464,470
Bolivia	..	4,458,492	443,896	2,743,760
Chile	..	12,574,480	1,367,168	7,207,775
Colombia	..	6,255,140	613,356	4,433,156
Peru	..	1,886,610	214,379	1,186,638
Venezuela	..	1,011,006	94,223	1,044,515
Other South America		8,594,688	858,645	2,822,476
Aden	..	10,893,844	1,045,173	4,581,600
British India	..	1,947,143	241,021	740,834
China	..	12,301,894	1,477,950	607,898
Philippine Islands	..	8,248,917	908,180	2,972,514
Australia	..	2,187,949	218,198	468,462
British Africa	..	1,134,443	112,022	1,140,201
Egypt	..	3,767,723	437,549	111,882
Other countries	..	7,018,484	806,814	3,532,342
Bleached	Sq. yd.	77,421,045	10,617,050	54,855,681
<i>Exported to:</i>				
Greece	..	65,605	9,652	33,509
United Kingdom	..	262,393	72,915	138,892
Canada	..	7,588,053	905,357	5,261,416
Central America	..	5,103,054	666,836	3,027,464
Mexico	..	5,238,757	863,817	2,950,387
Cuba	..	6,413,556	829,918	12,259,106
Dominican Republic	..	813,323	111,219	1,123,382
Haiti	..	1,470,383	203,432	1,453,846
Other West Indies	..	2,563,506	348,313	1,330,710
Argentina	..	3,484,940	601,514	1,723,800
Chile	..	1,781,441	203,932	484,957
Colombia	..	1,514,655	237,232	1,084,534
Peru	..	1,101,587	138,170	546,464
Other South America		2,225,543	324,007	984,261
British India	..	2,032,490	231,442	88,678
China	..	2,050,784	282,713	157,249
Philippine Islands	..	29,361,593	8,073,896	18,845,870
Other countries	..	4,079,090	520,288	2,021,117
Printed	Sq. yd.	86,017,286	11,058,974	76,787,926
<i>Exported to:</i>				
Canada	..	7,772,144	1,865,099	5,065,568
Central America	..	11,400,268	1,387,188	7,709,019
Mexico	..	3,933,301	744,398	3,759,898
Jamaica	..	2,189,593	256,841	901,922
Cuba	..	16,895,903	1,864,630	22,650,868
Dominican Republic	..	1,392,496	165,565	1,453,816
Haiti	..	1,598,803	206,164	1,772,447
Other West Indies	..	2,493,141	304,959	1,096,970
Argentina	..	2,751,092	425,672	3,978,374
Chile	..	1,226,317	171,682	1,609,928
Colombia	..	8,200,891	944,562	3,570,912
Ecuador	..	1,582,775	169,207	1,361,682
Peru	..	1,885,294	175,047	774,172
Other South America		2,545,056	380,154	2,207,409
Philippine Islands	..	17,700,730	2,032,059	13,819,903
Other countries	..	8,089,700	511,947	3,053,793
Piece dyed	Sq. yd.	73,808,995	13,013,213	79,513,605
				15,673,612

## U.S.A.

## EXPORTS—Continued.

Unit of Quantity	Nine months ending September			
	1922		1923	
	Quantity	Dollars Value	Quantity	Dollars Value
<i>Exported to :</i>				
Canada .. . . .	13,510,339	2,562,323	8,985,320	2,080,927
Central America .. . . .	8,348,655	1,893,713	6,070,148	1,216,153
Mexico .. . . .	4,903,823	1,091,261	5,121,737	1,198,423
Jamaica .. . . .	1,276,393	167,102	564,627	87,269
Trinidad and Tobago .. . . .	582,445	80,314	200,433	41,487
Cuba .. . . .	7,636,541	1,201,562	20,601,523	3,747,324
Dominican Republic .. . . .	1,254,440	195,303	1,494,225	255,114
Haiti .. . . .	1,447,639	215,127	1,377,244	242,997
Argentina .. . . .	10,060,237	1,790,216	5,827,836	1,077,963
Brazil .. . . .	2,284,829	328,130	1,478,074	266,196
Chile .. . . .	2,331,697	354,878	6,614,167	1,163,486
Colombia .. . . .	3,160,337	523,456	8,347,010	638,054
Peru .. . . .	1,053,388	207,764	2,065,931	515,140
Venezuela .. . . .	388,156	75,603	800,548	197,234
Other South America .. . . .	1,913,841	311,555	2,566,187	436,953
China .. . . .	225,979	30,021	143,016	29,183
Philippine Islands .. . . .	5,646,561	1,024,893	6,084,608	1,289,478
Australia .. . . .	677,688	138,988	420,557	106,658
British South Africa .. . . .	2,916,740	542,085	1,866,786	401,891
Other countries .. . . .	8,089,210	788,234	3,002,110	659,873
<b>Yarn or stock, dyed .. . . .</b>	<b>Sq. yd.</b>	<b>61,711,914</b>	<b>10,571,098</b>	<b>53,787,102</b>
<i>Exported to :</i>				
Norway .. . . .	730,815	126,851	528,048	125,558
Canada .. . . .	2,779,688	626,162	1,378,947	391,251
Central America .. . . .	6,825,483	1,023,331	5,086,424	936,510
Mexico .. . . .	1,845,172	416,144	1,133,882	302,465
Jamaica .. . . .	2,086,198	272,652	2,159,707	347,628
Cuba .. . . .	2,646,548	488,033	8,012,505	1,642,350
Dominican Republic .. . . .	2,605,399	365,103	3,916,232	693,187
Haiti .. . . .	6,074,891	1,000,283	5,876,659	1,126,628
Argentina .. . . .	4,138,777	858,784	2,681,392	614,774
Chile .. . . .	3,243,000	520,228	1,686,165	343,733
Colombia .. . . .	5,085,035	845,776	2,404,661	436,048
Ecuador .. . . .	1,470,782	197,840	1,107,671	194,156
Peru .. . . .	1,584,872	283,380	1,241,444	278,876
Venezuela .. . . .	332,916	57,878	1,058,178	212,928
Other South America .. . . .	1,850,576	300,622	1,047,317	209,856
Philippine Islands .. . . .	10,128,234	1,564,822	7,498,627	1,264,078
Australia .. . . .	3,580,274	762,532	2,083,015	463,802
New Zealand .. . . .	904,655	218,305	493,981	150,452
Other countries .. . . .	3,810,088	703,324	3,692,247	841,215
<b>Other cotton fabrics :</b>				
Blankets .. . . .	Pound	1,267,600	651,283	1,019,398
Damasks .. . . .	Sq. yd.	877,698	118,934	306,828
Pile fabrics, plushes, velveteens and corduroys .. . . .	"	401,637	343,021	344,046
Tapestries and other upholstery goods .. . . .	"	89,832	121,084	110,278
Other cotton fabrics, n.e.s. .. . .	Pound	3,264,300	1,040,507	3,775,237
<b>Cotton wearing apparel (total)</b> .. . . .		—	17,114,406	—
<b>Knit goods :</b>				
Gloves .. . . .	Doz. pair	55,200	70,733	34,719
Hosiery .. . . .	"	3,480,593	6,615,431	4,223,801
<i>Exported to :</i>				
France .. . . .		47,952	133,665	61,267
United Kingdom .. . . .		789,264	1,782,735	440,002
Canada .. . . .		398,805	582,488	410,698
Central America .. . . .		141,293	242,792	138,162
Mexico .. . . .		108,855	268,458	157,669
British West Indies .. . . .		87,300	142,487	99,359
Cuba .. . . .		646,650	881,925	1,029,198
Dominican Republic .. . . .		59,265	81,493	58,135
Argentina .. . . .		526,694	1,352,906	651,737
Colombia .. . . .		46,534	82,274	125,589
Uruguay .. . . .		115,538	202,835	174,270
Venezuela .. . . .		43,618	55,032	69,908
Other South America .. . . .		107,897	181,102	208,964
Philippine Islands .. . . .		82,803	70,234	69,373
Australia .. . . .		128,475	241,712	131,792
British South Africa .. . . .		44,304	78,840	81,322
Other countries .. . . .		155,522	286,150	256,958

## U.S.A.

## EXPORTS.—Continued

Unit of Quantity	Nine months ending September				
	1922		1923		
	Quantity	Dollars Value	Quantity	Dollars Value	
Underwear ..	Dozen	1,258,790	4,353,225	1,030,644	4,159,544
Sweaters, shawls and other knit goods ..	Pound	344,703	284,978	263,434	267,340
Other wearing apparel for men and boys :					
Collars and cuffs ..	Dozen	171,923	250,924	215,364	346,425
Overalls ..	Number	181,227	172,798	156,647	92,545
Underwear, not knit ..	"	877,107	454,980	1,552,171	600,570
Shirts ..		1,920,578	1,189,818	2,400,726	2,274,363
Other cotton clothing ..	Pound	1,209,707	1,041,568	1,245,609	1,454,396
Other wearing apparel for women and children :					
Corsets ..	Number	888,880	1,484,951	829,917	1,481,370
Dresses and skirts ..	"	202,644	325,064	152,327	261,001
Shirt waists and blouses ..	"	157,917	186,740	109,548	123,982
Underwear, not knit ..	"	468,904	160,966	474,568	178,707
Other cotton clothing ..	Pound	425,506	324,195	289,926	43,962
Handkerchiefs ..	Dozen	257,523	174,487	304,515	215,576
Laces and embroideries ..	Yard	6,334,231	273,552	6,598,920	274,856
Lace and window curtains ..	"	322,096	91,727	206,148	77,195
Cotton belting ..	Pound	—	—	316,151	134,992
Cotton bags ..	"	2,260,055	369,740	2,200,596	777,458
Mattresses ..	Number	8,028	65,336	9,002	77,614
Quilts and comforts ..	"	48,830	79,846	59,180	107,764
Sheets and pillow cases ..	"	176,049	122,398	161,428	138,612
Towels and bath mats ..	"	8,803,197	621,527	4,041,214	739,286
Other manufactures of cotton, n.e.s. ..	Pound	9,288,855	4,492,096	9,311,072	5,031,352

## U.S.A. IMPORTS of Raw Cotton and Manufactured Cotton Goods for nine months ending September 1922 and 1923.

Unit of Quantity	Nine months ending September			
	1922		1923	
	Quantity	Dollars Value	Quantity	Dollars Value
Cotton, unmanufactured :				
Long staple ..	{ free..	Pound		
dut..	"		18,217,702	6,193,982
Short staple ..	.. free..	"	95,506,674	22,350,433
Total ..	..	"	113,724,376	28,544,415
Imported from :				
United Kingdom ..	..	"	4,099,507	1,879,076
Mexico ..	..	"	10,379,483	1,818,450
Peru ..	..	"	9,183,247	1,931,248
British India ..	..	"	4,699,681	652,268
China ..	..	"	8,224,740	1,350,168
Egypt ..	..	"	72,618,910	20,419,271
Other countries ..	..	"	4,318,708	967,919
Cotton manufactures (total) ..	—	—	65,748,850	—
Waste ..	.. free..	Pound	7,202,803	625,627
Yarns and warps ..	.. dut..	"	3,583,792	4,005,586
Not bleached, dyed, coloured, etc.	.. dut..	"	—	—
Bleached, dyed, coloured, combed or piled ..	.. dut..	"	—	3,550,960
Sewingthread, crochet, darning, and knitting cotton ..	.. dut..	100 yds.	39,481,718	2,209,944
Cotton cloth (total) ..	..	Sq. yd.	109,638,003	80,560,003
Not bleached ..	..	dut..	23,028,859	4,601,907

## INTERNATIONAL COTTON BULLETIN

U.S.A.

IMPORTS.—Continued.

	Unit of Quantity	Nine months ending September			
		1922		1923	
		Quantity	Dollars Value	Quantity	Dollars Value
<i>Imported from :</i>					
France .. . . .	Sq. yd.	—	—	—	141,268
Switzerland .. . . .	"	—	—	—	849,978
United Kingdom .. . . .	"	—	—	—	12,540,490
Other countries .. . . .	"	—	—	—	140,341
Bleached .. . . . dut .. .		17,678,670	4,877,657	—	8,081,328
<i>Imported from :</i>					
France .. . . .	"	—	—	—	116,092
Switzerland .. . . .	"	—	—	—	668,773
United Kingdom .. . . .	"	—	—	—	2,078,656
Japan .. . . .	"	—	—	—	79,510
Other countries .. . . .	"	—	—	—	93,267
Coloured, dyed, painted, etc., and woven-figured .. . . . dut .. .	Sq. yd.	68,753,561	20,791,039	—	19,002,810
<i>Imported from :</i>					
France .. . . .	"	—	—	—	1,757,900
Switzerland .. . . .	"	—	—	—	730,034
United Kingdom .. . . .	"	—	—	—	18,858,507
Japan .. . . .	"	—	—	—	1,577,661
Other countries .. . . .	"	—	—	—	1,167,717
Cotton fabrics, n.e.s.:					
Damasks and manufactures of dut	"	—	—	173,052	249,206
Flie fabrics and Terry-woven fabrics .. . . . dut .. .	"	—	123,100	278,911	680,979
Tapestries and other Jacquard-woven upholstery goods dut .. . .	"	—	896,080	497,901	820,244
Knit fabrics .. . . . dut .. .	"	—	—	15,061	28,843
Wearing apparel (total) .. . . .	—	—	10,017,114	—	9,079,191
Product of the Philippine Islands free—	—	—	2,214,350	—	205,078
Knit goods:					
Gloves .. . . . dut .. oz. pis.	1,327,804	3,629,479	—	—	—
Warp-knit single fold, and other .. . . . dut .. .	"	—	—	779,519	2,652,514
Two or more fold, wholly or partly of warp-knit fabric dut .. .	"	—	—	170,504	741,922
Hosiery .. . . . dut .. .	1,151,409	1,734,966	482,365	—	1,001,421
Underwear and other knit goods .. . . . dut .. .	Dozen	4,413	39,474	69,594	252,527
Wearing apparel wholly or partly of lace, or embroidered, beaded etc. .. . . . dut .. .	—	—	—	—	3,425,842
All other .. . . . dut .. .	—	—	2,369,645	—	709,202
Handkerchiefs and mufflers .. . . dut .. .	Dozen	1,047,152	1,394,932	—	—
Not hemmed .. . . . dut .. .	Pound	—	—	5,164	18,128
Hemmed or hemstitched .. . . . dut .. .	"	—	—	170,065	492,024
Lace-trimmed, embroidered, etc. dut .. .	"	—	—	117,352	549,170
Laces, embroideries, etc. (total) .. . .	—	—	10,647,529	—	11,948,724
Product of the Philippine Islands free—	—	—	100,263	—	40,796
Hand-made laces .. . . dut .. . Pound	—	—	1,655,574	136,360	1,598,399
<i>Imported from :</i>					
France .. . . .	"	—	18,087	6,407	55,553
Germany .. . . .	"	—	7,811	3,706	20,114
Switzerland .. . . .	"	—	1,275	2,553	28,459
United Kingdom .. . . .	"	—	3,205	887	10,774
China .. . . .	"	—	1,532,826	113,935	1,408,928
Other countries .. . . .	"	—	72,420	8,920	79,573
Machine-made laces .. . . dut .. .	—	—	3,921,450	1,996,732	6,148,422
<i>Imported from :</i>					
France .. . . .	"	—	2,220,081	687,398	2,862,506
Germany .. . . .	"	—	626,004	1,100,361	2,266,928
Switzerland .. . . .	"	—	268,924	69,379	288,860
United Kingdom .. . . .	"	—	491,432	132,254	524,321

## U.S.A.

## IMPORTS.—Continued.

Unit of Quantity	Nine months ending September			
	1922		14.	
	Quantity	Dollar Value	Quantity	Dollar Value
China .. .	Pound	—	249,799	11,610 67,464
Other countries .. .	"	—	70,210	38,741 138,345
Articles made in part of lace, dut	"	—		233,224 969,487
Nets, netting, veils, and veiling, dut	"	—	1,101,155	329,781 953,674
Lace window curtains .. . dut	Sq. yd.	1,452,626	646,890	1,524,106 572,186
Embroideries .. . dut	Pound	—	985,586	12,002 484,512
<i>Imported from :</i>				
France .. .. .	"	—	—	7,187 29,035
Germany .. .. .	"	—	—	20,453 32,947
Switzerland .. .. .	"	—	—	8,088 844,970
China .. .. .	"	—	—	1,376 10,487
Other countries .. .. .	"	—	—	14,948 46,543
All other laces, embroideries etc. dut	"	—	2,230,611	505,193 1,199,488
Other cotton manufactures .. . dut..	—	—	3,262,533	— 3,039,938

## UNITED STATES TRADE IN COTTON YARNS.

Imports of cotton yarn into the United States for the fiscal year ended June 30, 1923, amounted to 6,335,569 lbs. worth \$6,878,166, an increase over the 3,989,739 lbs., valued at \$4,524,097, reported for the 12 months ended June 30, 1922. Under the new tariff act, effective Sept. 22, 1922, cotton yarn and warps were subdivided into two classes: Not bleached, dyed, coloured, combed or plied; and bleached, dyed, coloured, combed or plied. The following compilation has been made by the Textile Division, showing the imports of cotton yarn for the fiscal year 1923, by countries, under both the old and the new classifications:

## UNITED STATES IMPORTS OF COTTON YARNS AND WARPS FOR FISCAL YEAR ENDED JUNE 30, 1923

Countries of origin	September 22, 1922, to July 1, 1923				July 1, 1923, to July 1, 1923	
	July 1 to September 22, 1922		Not bleached, dyed, coloured, etc.			
	lbs.	Value.	lbs.	Value		
Belgium ..	129	\$ 82	8	\$ 7	18,543 20,270 20,359	
Bulgaria ..	—	—	—	—	1,609 2,216 2,216	
France ..	2,262	2,066	7,028	5,189	84,577 46,694 58,899	
Germany ..	12,920	11,077	28,500	10,898	95,632 81,191 103,166	
Netherlands ..	3,938	3,544	900	460	2,732 1,446 5,450	
Poland and Danzig ..	—	—	—	—	500 705 705	
Switzerland ..	767	1,365	350	722	6,782 9,983 12,070	
England ..	1,310,853	1,425,847	458,171	321,687	4,177,458 4,788,680 6,533,714	
Scotland ..	88,857	66,254	2,486	1,696	38,214 32,157 100,107	
Ireland ..	256	696	—	—	28,747 81,826 82,022	
Canada, Maritime Provinces ..	21	15	12	9	— — 24	
Quebec and Ontario ..	1,009	1,059	1,007	1,030	452 1,809 3,398	
China ..	—	—	4,952	1,603	4,000 1,343 2,946	
Hongkong ..	—	—	—	—	25 10 10	
Japan ..	17	21	—	—	6,848 6,059 6,080	
Total ..	1,421,026	1,511,526	498,409	348,251	4,416,134 5,028,389 6,878,166	

The United States exported 14,254,335 lbs. of cotton yarn, valued at \$7,305,141, in the 12 months ended June 30, 1923, compared with 15,116,483 lbs., worth \$5,760,046, in the fiscal year 1922. This represents a decrease of 6 per cent. in the quantity but an increase of almost 27 per cent. in the value. Beginning January 1, 1922, cotton yarn exports have been reported as "carded yarn, not combed," and "combed yarn." The countries of destination for these classifications for the fiscal year 1923 are shown in the following table:

**UNITED STATES EXPORTS OF COTTON YARNS FOR FISCAL YEAR  
ENDED JUNE 30, 1923**

Countries of destination	Carded yarn, not combed		Combed yarn	
	lbs.	Value	lbs.	Value
Europe .. ..	12,008	\$ 3,961	28,062	18,725
Quebec and Ontario .. ..	860,104	205,880	2,087,555	1,939,934
Other Canada .. ..	1,957	991	67,388	54,010
Central America .. ..	143,210	60,386	184,425	60,724
Mexico .. ..	1,000	1,125	10,787	25,362
Newfoundland and Labrador	82,662	26,011	104,936	31,159
Cuba .. ..	79,383	40,142	89,075	59,426
Other West Indies .. ..	6,259	2,243	17	17
Argentina .. ..	6,910,982	2,773,454	1,182,118	507,404
Brazil .. ..	5,490	5,466	24,479	30,744
Chile .. ..	405,975	166,409	646,395	296,009
Colombia .. ..	474,069	206,107	800,761	143,691
Uruguay .. ..	821,584	129,977	218,276	95,872
Venezuela .. ..	28,480	11,542	9,964	8,358
Other South America .. ..	14,439	6,322	8,206	4,177
China .. ..	11,204	5,616	11,315	11,348
Hongkong .. ..	40,612	13,809	-	-
Australia .. ..	288,699	195,897	180,830	146,188
Other countries .. ..	14,918	6,053	5,061	4,782
Total .. ..	9,145,075	8,867,211	5,109,260	3,437,930

More than 70 per cent. of the total quantity of cotton yarn exported from the United States in the fiscal year 1923 went to South American countries, which took 8,155,969 lbs. of carded yarn, not combed, worth \$3,299,067, and 2,385,259 lbs. of combed yarn with a value of \$1,086,255.





# INTERNATIONAL COTTON STATISTICS

## Mill Consumption and Mill Stocks.

In the previous issue we published the usual tables of cotton consumption and mill stocks for the half year ending 31st August, but as Brazil and Germany's figures had not reached us in time we made estimates for these countries in the original tables. We have now obtained the actual figures from both, and although they do not differ considerably from the estimates we prefer to give a revised set of tables for more reliable reference on later occasions.

In order to show in a striking way the gradual change in the consumption of the different kinds of cotton that has taken place for the last two years we have prepared Table No. 3, pp. 260-1, showing the percentage of each kind of cotton, for each country separately. A study of this table will repay, for this change continues at the present time probably in a more pronounced way and is responsible for the rise in the difference in price between the various growths that has taken place of late. This change as affecting Egyptian cotton was pointed out in the remarks accompanying the original tables, but Table No. 3 shows the march of events at a glance. Note, for instance, that in 1913 85·80 per cent. of all the cotton used in Great Britain was American, but to-day it is only 65·11 per cent., whilst, of course, the percentage of consumption of all the other kinds, especially of Egyptian (1913, 9·19 per cent.; 1923, 16·53 per cent.), has grown.

The spindle statistics, Table No. 4, pp. 262-3, shows that many mills have gone from American to Egyptian cotton. (In Europe an increase of two-and-a-quarter million spindles since the beginning of the last season.) This change must affect prices, especially if it becomes more pronounced, as is anticipated by some in view of the American cotton shortage.

In other countries, particularly in Belgium and Austria, the most remarkable increase is in Indian cotton.

Tables showing the production of cotton throughout the world, the carry-over, prices, etc., are appended and should prove useful for reference; some of these have been compiled by Mr. John A. Todd.

MANCHESTER,  
2nd December, 1923

ARNO S. PEARSE,  
*General Secretary.*

Table No. 1 Calculated TOTAL WORLD'S COTTON MILL  
and 1922 on basis of Spinners' returns made

IN THOUSANDS OF ACTUAL BALES  
(regardless of weight)

COUNTRIES	AMERICAN				EAST INDIAN			
	Half year ending				Half year ending			
	July 31 1923	Jan 31 1923	July 31 1922	Jan 31 1922	July 31 1923	Jan 13 1923	July 31 1922	Jan 31 1922
<b>EUROPE —</b>								
(1) Great Britain ..	823	1,096	1,168	1,107	68	39	27	27
(2) France ..	390	400	450	319	96	74	78	41
(3) Germany ..	292	448	469	412	87	126	110	109
(4) Russia ..	61	61	24	3	—	—	—	—
(5) Italy ..	274	327	309	264	131	108	99	101
(6) Czechoslovakia ..	87	91	142	167	41	20	28	27
(7) Spain ..	94	155	180	114	28	37	30	16
(8) Belgium ..	62	67	69	67	68	59	49	51
(9) Switzerland ..	28	31	29	26	4	3	3	3
(10) Poland ..	74	98	88	82	24	20	19	18
(11) Austria ..	27	34	41	45	23	18	12	13
(12) Holland ..	38	48	48	43	13	12	12	12
(13) Sweden ..	36	42	37	37	2	2	1	1
(14) Portugal ..	25	21	21	16	—	—	—	—
(15) Finland ..	16	16	15	18	—	—	—	—
(16) Denmark ..	11	15	8	10	1	—	—	—
(17) Norway ..	3	4	4	3	—	—	—	—
Europe Total ..	2,839	2,944	3,097	2,798	586	518	468	419
<b>ASIA —</b>								
(1) India .. ..	5	21	19	35	1,015	1,182	1,102	1,105
(2) Japan .. ..	380	393	481	365	877	845	785	695
(3) China .. ..	87	78	95	86	186	171	214	182
Asia Total ..	872	487	545	486	2,078	2,198	2,101	1,982
<b>AMERICA —</b>								
(1) U.S.A. .. ..	3,198	3,125	2,760	2,855	13	8	5	6
(2) Canada .. ..	88	92	88	73	—	—	—	—
(3) Mexico .. ..	9	11	11	89	—	—	—	—
(4) Brazil .. ..	—	—	—	—	—	—	—	—
America Total ..	3,290	3,228	2,854	2,967	18	8	5	6
Sundries .. ..	8	8	10	—	1	—	—	—
HALF YEAR TOTALS ..	6,004	6,062	6,506	6,246	2,878	2,724	2,569	2,357
Grand Total ..	12,676		12,752		5,402		4,926	
Cotton Season ..	1923		1922		1923		1922	

\* Including returns from Brazil and Germany which were not to hand when the original tabulation was published.

**CONSUMPTION for the Cotton Seasons 1923  
to the International Cotton Federation\***

IN THOUSANDS OF ACTUAL BALES  
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL			
Harvest ending				Half year ending				Half year ending			
July 31 1923	Jan. 1923	July 31 1922	Jan. 1922	July 31 1923	June 30 1923	July 1 1922	Jan. 1922	July 31 1923	Jan. 1923	June 30 1922	July 1 1922
209	184	168	168	164	187	125	74	1,264	1,506	1,488	1,376 (1)
47	46	45	29	95	31	28	15	628	551	601	484 (2)
18	21	20	21	10	12	10	11	407	607	609	588 (3)
1	1	1	3	151	234	229	366	213	296	257	372 (4)
24	20	14	8	4	5	3	2	433	460	425	373 (5)
6	2	4	5	4	3	4	2	188	116	178	201 (6)
17	16	13	4	2	2	--	3	141	210	225	137 (7)
2	2	2	2	7	5	1	2	139	133	121	122 (8)
16	14	13	13	1	--	--	1	47	48	45	43 (9)
3	4	3	1	2	8	7	2	103	125	117	103 (10)
2	1	1	1	1	--	--	1	53	53	54	60 (11)
—	—	—	—	1	--	--	--	52	55	55	55 (12)
1	1	—	—	—	--	--	--	39	45	38	38 (13)
2	1	1	1	24	18	11	19	51	85	33	36 (14)
—	—	—	—	—	--	--	--	16	16	15	18 (15)
—	—	—	—	—	1	--	--	12	16	8	10 (16)
—	—	—	—	—	--	--	--	8	4	4	8 (17)
348	313	290	256	466	501	418	498	8,739	4,276	4,268	3,906
1	4	7	8	15	9	23	20	1,036	1,216	1,151	1,163 (1)
17	14	14	12	69	31	80	40	1,293	1,283	1,260	1,112 (2)
1	3	1	1	515	623	450	117	789	870	760	636 (3)
19	21	22	16	599	603	503	477	3,068	3,809	3,171	2,911
103	77	74	82	51	47	34	60	8,365	8,257	2,898	3,003 (1)
2	—	—	1	—	—	—	—	85	92	88	74 (2)
—	—	—	—	54	62	57	25	63	78	68	64 (3)
—	—	—	—	895	275	250	227	895	275	250	227 (4)
105	77	74	83	500	384	361	312	3,908	3,697	3,294	3,368
8	7	—	7	32	32	146	21	44	42	156	28
480	418	386	362	1,597	1,580	1,428	1,308	10,759	11,384	10,889	10,273
898	748	8,177	2,786	22,143	21,162						
1923	1922	1923	1922	1923	1922			1923	1922		

**Calculated TOTAL WORLD'S COTTON MILL STOCK**  
**on basis of Spinners' returns made to**

Table No. 2

**IN THOUSANDS OF ACTUAL BALES**  
**(regardless of weight)**

COUNTRIES	AMERICAN				EAST INDIAN			
	Half year ending		Half year ending		July 31		July 31	
	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1922	1923	1923	1922	Jan. 31 1922
<b>EUROPE :—</b>								
(1) Great Britain ..	104	132	188	200	29	14	14	8
(2) France ..	88	116	124	109	50	30	49	20
(3) Germany ..	58	73	130	113	32	33	53	48
(4) Russia ..	26	13	18	3	—	—	—	—
(5) Italy ..	90	120	119	126	57	43	50	52
(6) Czechoslovakia ..	18	23	42	40	10	6	10	11
(7) Spain ..	32	27	118	15	3	4	16	1
(8) Belgium ..	17	27	21	26	28	19	22	26
(9) Switzerland ..	11	14	14	21	3	2	2	2
(10) Poland ..	12	14	14	9	6	6	9	8
(11) Austria ..	7	10	14	11	11	5	6	6
(12) Holland ..	10	15	16	10	8	4	10	6
(13) Sweden ..	11	14	11	18	2	1	1	1
(14) Portugal ..	6	5	6	4	—	—	—	—
(15) Finland ..	2	6	4	3	—	—	—	—
(16) Denmark ..	3	3	3	1	—	—	—	—
(17) Norway ..	1	1	1	1	—	—	—	—
Europe Total ..	496	637	838	740	239	169	242	184
<b>ASIA :—</b>								
(1) India ..	5	14	19	21	717	393	882	764
(2) Japan ..	160	167	307	316	570	378	563	459
(3) China ..	20	25	53	58	88	64	110	48
Asia Total ..	185	206	381	300	1,875	1,037	1,537	1,271
<b>AMERICA :—</b>								
(1) U.S.A. ..	977	1,908	1,124	1,592	9	3	6	4
(2) Canada ..	24	46	27	36	—	—	—	—
(3) Mexico ..	8	4	4	10	—	—	—	—
(4) Brazil ..	—	—	—	—	—	—	—	—
America Total	1,009	1,958	1,135	1,688	9	3	6	4
Sundries .. ..	8	8	1	—	—	—	—	—
HALF YEAR TOTALS ..	1,698	2,804	2,375	2,768	1,628	1,209	1,805	1,459

\* Including returns from Brazil and Germany which were not to hand when the original tabulation was published.

at the end of the Cotton Seasons 1923 and 1922  
the International Cotton Federation™

IN THOUSANDS OF ACTUAL BALES  
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL			
Half year ending				Half year ending				Half year ending			
July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1922	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1922	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1922
69	68	71	60	35	40	48	36	287	269	311	304
23	26	23	16	11	17	17	7	172	189	213	132
5	8	8	10	5	6	3	5	100	122	196	201
5	1	1	2	42	70	198	70	73	84	212	75
12	12	8	7	2	2	2	2	161	179	179	187
2	1	2	3	1	1	2	1	31	33	56	55
1	8	10	2	1	—	2	—	87	39	146	18
1	1	1	1	8	1	1	1	49	48	45	54
11	11	10	10	1	1	1	1	26	28	28	34
2	1	2	1	1	1	8	1	21	22	28	10
1	—	1	1	—	1	—	—	19	16	21	18
—	—	—	—	—	—	—	—	18	19	26	16
1	—	—	—	—	—	—	—	14	15	12	19
—	—	—	—	6	4	8	6	12	9	9	10
—	—	—	—	—	—	—	—	2	6	4	3
—	—	—	—	—	—	—	—	3	3	3	1
—	—	—	—	—	—	—	—	1	1	1	1
183	182	137	113	108	144	272	130	976	1,082	1,489	1,167
1	4	11	7	10	2	18	26	733	615	930	818
21	22	19	18	30	35	18	13	781	602	904	806
—	—	1	2	108	267	149	217	211	856	315	320
22	26	81	27	143	804	180	256	1,725	1,573	2,149	1,944
60	48	43	44	24	28	34	31	1,070	1,977	1,207	1,671
1	—	—	1	—	—	—	—	25	46	27	37
1	—	—	—	22	40	32	24	31	44	36	34
—	—	—	—	74	103	146	156	74	103	146	156
62	48	48	45	120	168	212	211	1,200	2,172	1,416	1,898
3	3	—	9	25	18	13	5	31	24	14	14
220	204	211	194	396	634	677	602	3,932	4,851	5,068	5,023

Table No. 3 CONSUMPTION OF THE DIFFERENT KINDS  
This Table shows at a glance the diminished use of American

	AMERICAN				EAST INDIAN						
	Half year ending		Year		Half year ending		Year				
	July 1923	Jan. 1922	July 1922	Jan. 1922	July 1923	Jan. 1923	July 1922	Jan. 1922			
<b>EUROPE : -</b>											
1. Great Britain ..	65.11	72.77	78.49	80.45	85.80	5.38	2.59	1.82	1.96	1.24	
2. France ..	62.10	72.59	71.87	80.41	79.80	15.29	13.43	12.99	9.45	9.40	
3. Germany ..	71.75	73.81	77.02	75.81	75.92	21.87	20.76	18.06	18.70	13.37	
4. Russia ..	26.64	20.61	9.34	-81	19.41	-	-	-	-	.84	
5. Italy ..	63.29	71.09	72.71	70.41	72.24	30.26	23.48	23.29	26.93	22.16	
6. Czechoslovakia	63.04	74.15	82.08	83.00	74.91	20.71	17.24	13.29	13.43	18.40	
7. Spain ..	66.67	73.81	80.00	83.21	79.61	19.86	17.02	13.33	11.68	9.30	
8. Belgium ..	44.60	50.37	37.03	34.02	66.54	48.93	44.37	40.49	41.80	31.91	
9. Switzerland ..	55.32	64.58	64.41	60.46	65.60	8.51	6.25	6.67	6.98	4.04	
10. Poland ..	71.82	74.40	75.22	79.02	30.19	23.30	16.00	16.24	17.47	3.63	
11. Austria ..	50.94	64.15	75.93	75.00	71.91	43.40	33.06	22.22	21.67	22.18	
12. Holland ..	73.07	78.18	78.18	78.18	79.07	25.00	22.82	22.82	22.82	13.95	
13. Sweden ..	92.31	93.33	97.37	97.37	93.63	5.13	4.44	2.63	2.63	2.61	
14. Portugal ..	49.02	60.00	63.64	44.41	80.00	-	2.86	3.03	2.78	1.33	
15. Finland ..	100.00	100.00	100.00	100.00	100.00	-	-	-	-	-	
16. Denmark ..	91.67	93.73	100.00	100.00	95.00	5.33	-	-	-	-	
17. Norway ..	100.00	100.00	100.00	100.00	81.82	-	-	-	-	9.08	
<b>ASIA : -</b>											
1. India ..	..	48	1.73	1.65	3.01	1.82	97.97	97.20	95.74	95.01	95.59
2. Japan ..	..	25.52	30.63	34.21	32.82	26.76	67.83	65.86	62.30	62.50	62.47
3. China ..	..	5.01	8.39	12.50	13.53	-	25.17	19.65	26.16	20.75	-
<b>AMERICA : -</b>											
1. U.S.A. ..	..	95.04	95.93	95.40	95.07	95.97	39	24	17	20	?
2. Canada ..	..	97.65	100.00	100.00	98.65	100.00	-	-	-	-	-
3. Mexico ..	..	14.28	13.07	16.18	60.94	6.96	-	-	-	-	-
4. Brazil ..	..	-	-	--	--	--	-	-	-	-	-

## OF COTTON, EXPRESSED IN PERCENTAGES.

Cotton and the steady increase in the use of other growths.

EGYPTIAN				Year 1913	SUNDRIES				Year 1913		
Half year ending		July, 1923	Jan., 1923		Half year ending		July, 1923	Jan., 1923			
July, 1922	Jan., 1922				July, 1922	Jan., 1922					
16.53	12.22	11.29	12.22	9.19	12.98	12.42	8.40	5.87	3.77 (1)		
7.48	8.83	7.48	6.68	7.93	15.18	5.68	4.66	3.46	2.87 (2)		
4.42	3.46	3.28	3.60	6.31	2.46	1.97	1.64	1.89	4.40 (3)		
.47	.84	1.56	.80	3.47	70.89	79.05	89.10	98.39	76.28 (4)		
5.34	4.84	3.29	2.18	2.41	.91	1.09	.71	.53	3.17 (5)		
4.85	1.72	2.32	2.49	8.94	2.90	2.59	2.31	.99	2.75 (6)		
12.06	7.62	6.67	2.92	5.39	1.41	.95	—	2.19	5.80 (7)		
1.44	1.50	1.65	1.64	.89	3.03	3.76	.88	1.64	1.16 (8)		
34.04	29.17	28.89	30.23	29.29	2.18	—	—	2.33	1.01 (9)		
2.92	8.20	2.56	.97	3.62	1.94	6.40	5.98	1.94	62.56 (10)		
8.77	1.89	1.85	1.67	2.41	1.89	—	—	1.66	2.73 (11)		
—	—	—	—	—	1.93	—	—	—	6.98 (12)		
2.56	2.28	—	—	—	—	—	—	—	1.74 (13)		
3.92	—	—	—	1.34	47.06	37.14	33.38	32.78	17.38 (14)		
—	—	—	—	—	—	—	—	—	(15)		
—	—	—	—	—	—	6.23	—	—	4.00 (16)		
—	—	—	—	—	—	—	—	—	9.09 (17)		
—	—	—	—	—	—	—	—	—	—		
.10	.38	.61	.26	.04	1.45	.74	2.00	1.72	.05 (1)		
1.81	1.09	1.11	1.08	1.01	5.84	2.42	2.38	3.60	9.76 (2)		
.18	.34	.18	.16	—	69.69	71.62	59.21	65.56	— (3)		
—	—	—	—	—	—	—	—	—	—		
8.06	2.37	2.56	2.73	8.48	1.51	1.44	1.87	2.00	.55 (1)		
2.35	—	—	1.85	—	—	—	—	—	(2)		
—	—	—	—	1.27	83.72	84.93	83.82	89.06	91.77 (3)		
—	—	—	—	—	100.00	100.00	100.00	100.00	100.00 (4)		

**CALCULATED TOTAL WORLD'S COTTON  
years 31 July, 1923 and 31 Jan.**

Table No. 1

COUNTRIES	TAXES ISSUED IN NUMBERS SINNIN SISÄSTÄ		MONEY SENT IN	
	July 1-11	June 1-11	July 31-11	Jan. 1-11
EUROPE				
Czechoslovakia	56 583	56 613	11 013	13 650
France	9 600	9 600	1 219	1 225
Germany	9 582	9 605	1 320	1 123
Russia	7 216	7 216	2 598	2,895
Italy	1 370	1 360	541	816
Czechoslovakia	3 503	3 502	1 522	1 929
Spain	1 813	1 813	622	622
Belgium	1 693	1 673	169	197
Switzerland	1 513	1 519	811	851
Poland	1 200	1 200	175	152
Austria	1 023	1 023	529	171
Holland	669	635	21	201
Sweden	566	565	105	120
Portugal	457	457	166	166
Iceland	211	239	61	61
Denmark	97	95	13	13
Norway	66	65	13	12
Total	100 217	100 143	61 692	61 546
ASIA				
India	7 331	7 331	1 151	1 135
Japan	1 877	1 753	51	19
China	2 650	2 552		
Total	11 858	11 636	1 205	1 163
AMERICA				
U.S.A.	37 397	37 225		
Canada	1 076	1 076	161	303
Mexico	770	770	5	8
Brazil	1 700	1 660		
Total	40 913	40 751	169	311
Sundries	273	251	—	—
Grand total	136 353	136 061	63 366	63 010

\* Of these 346 36-pindles which were destroyed during the year but have not yet been replaced.  
† Only 1 501 000 of these were in wool throughout the six months under review.

**SPINNING SPINDLES (000's omitted) for the half  
1923, on basis of returns made to  
Federation's Statistics.**

RING SPINDLES		SPINNING MILL SPINDLES		SPINDLES IN COURSE OF FRICITION	
Half year ending		Half year ending		Half year ending	
July 1 1923	Jun 31 1923	July 31 1923	Jun 30 1923	July 1 1923	Jun 31 1923
12 510	12 963	18 570	16 980	50	207
5 351	4 029	2 237	2 266	150	218
5 062	5 152	791	688	90	77
4 348	4 318	150	100	—	—
3 726	3 711	114	124	53	20
1 686	1 573	203	119	6	9
1 191	1 191	155	155	—	—
1 211	1 176	89	33	32	84
669	668	998	756	6	25
722	718	116	119	24	45
191	519	49	75	—	—
156	134			16	96
161	115	18	12	1	14
321	821	18	10	10	2
177	175	2	3	—	2
51	92			—	—
58	58			—	—
38 553	38 551	21 005	21 740	498	749
6 177	6 196	9	7	196	392
1 926	4 705	107	348	339	241
2 680	2 552	—	—	700	620
13 083	13 153	116	355	1 235	1 253
37 397	37 235	?	?	(estimate) 1 000	?
612	773	57	—	—	—
765	762	23	—	7	—
1 700	1 680	—	—	?	?
40 471	40 440	80	—	1,007	—
275	254	55	20	—	1
92 987	92 698	24 556	22 115	2 680	2 008

**SPECIFICATION OF PART OF THE COTTON RETURNED AS "SUNDRIES" (IN ACTUAL BALES)**  
 TABLE No. 5      Six Months ending 31st July, 1923

\* Includes : Chinese, 804; Australian, 615; Turkish, 432; Columbian, 415; Ecuador, 315; Argentine, 123; Maltese, 106; Cyprus, 70; Hayti, 60; Persian, 54; Mesopotamian, 48; Smyrna, 24.

**Includes:** Australian, 1190; Chinese, 302; Turkish, 70; Persian, 39; Argentine, 30; Smyrna, 11; Mesopotamian, 7; Haytian, 2.

TABLE 6.—THE WORLD'S PRINCIPAL COTTON CROPS 1913-23 (000's omitted)

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
<b>AMERICAN :</b>											
Area harvested (acres) ..	37,089	36,832	31,412	34,985	33,841	36,008	33,566	35,878	30,509	33,036	38,287 (planted)
Crop, running bales, including linters	14,614	16,738	12,013	12,664	12,845	12,817	11,921	13,711	8,378	10,438	10,700
Crop, running bales, excluding linters	14,156	16,135	11,192	11,450	11,302	12,041	11,421	18,440	7,954	9,762	19,000 { probably lower
Average yield lbs. per acre, excluding linters .. ..	182.0	209.2	170.3	156.6	159.7	159.6	161.5	178.4	124.5	141.5	128.9
<b>EGYPTIAN :</b>											
Area (feddans) .. ..	..	..	1,723	1,735	1,186	1,636	1,677	1,316	1,574	1,828	1,292
Crop, kantars of 100 lbs.	.. ..	7,684	6,490	4,806	5,111	6,308	4,821	5,751	5,030	4,358	1,800 1,588
Average yield lbs. .. ..	..	..	446	370	406	310	375	366	354	330	6,213 more likely 1,800 6,260
Export in actual bales .. ..	970	833	728	631	714	718	738	445	764	945	900
<b>INDIAN :</b>											
Area (acres) .. ..	..	..	25,023	24,595	17,747	21,745	25,188	20,977	23,353	18,451	21,154 21,000
Crop, bales of 400 lbs.	.. ..	..	5,066	5,209	3,738	4,489	4,000	3,972	5,796	3,600	4,470 5,000
Average yield lbs. .. ..	..	..	81	84	84	83	64	76	99	67	97 98 96
Total running bales (excluding linters) ..	20,192	22,177	15,658	16,570	16,016	16,731	17,955	17,485	18,197	16,903	16,148
Per cent on 1914 .. ..	..	..	91	100	72	78	76	81	79	59	69 71

Estimates are printed in italics. \* Up Country.

TABLE 7.—SUMMARY OF THE SMALLER COTTON CROPS, 1912-22.  
(In 500-lb. bales (approx.), 000's omitted.)

COUNTRY	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
China†	2,360	1,963	2,832	2,068	1,569	1,583	1,725	2,484	1,800	1,450	2,216
Persia	..	136	142	139	133	95	82	84	120	125	87
Europe and Asia Minor	..	176	172	157	132	119	109	127	131	71	70
Russia	..	..	..	969	1,152	1,201	1,429	600	152	77	55
Mexico	..	..	..	172	159	108	95	103	119	236	230
Brazil	..	..	..	357	399	387	298	351	410	497	553
Peru ..	..	106	134	122	116	129	125	138	187	150	181
Other South American	13	14	14	14	16	20	22	—	24	42	74
*West Indies (British)	6	7	6	6	4	3	5	6	5	5	4
West Indies (others)	..	13	10	13	14	11	10	12	16	16	25
East Indies, etc.	..	61	78	75	72	78	77	73	106	107	97
Japan and Korea ..	..	52	59	68	63	63	79	91	116	133	130
*Africa (British)	..	..	6*	65	74	66	61	66	47	69	96
Africa (others)	..	..	16	16	3	2	3	3	5	4	10
Australia and Mesopotamia ..	..	—	—	—	—	—	—	—	1	1	1
Totals	..	4,501	4,370	4,699	4,503	3,748	3,305	3,196	4,111	3,337	3,191
Carried Forward from Table I	..	20,192	22,177	15,658	16,370	16,016	16,731	17,955	17,485	18,197	15,903
GRAND TOTAL ..	..	..	24,693	26,547	20,357	21,073	19,764	20,036	21,151	21,596	16,534

Part of this information is based on tables published by M.R. JOHN A. TODD.

\* 400 lb. bales. † For 1912 to 1918 the figures given are the mean of all known estimates J.A.T.

TABLE 8

## AMERICAN COTTON CROP

(A) AVERAGE FIGURES OF THE DEPARTMENT OF AGRICULTURE,  
WASHINGTON, D C

	1921-22	1922-23	1923-24
(1) PLANTED	(Acres)	(000's omitted)	
Estimate 23rd June ..	26,510	34,852	38,287
Revised December ..	32,332	34,980	—
Revised following June ..	31,078	34,016	—
(2) HARVESTED			
Estimate December ..	31,127	38,742	36,334 (23 Octr.)
Revised following June ..	30,509	38,086	—

(B) CONDITION REPORTS AND FORECASTS OF THE DEPARTMENT  
OF AGRICULTURE, WASHINGTON, D C

	May 25	June 25	July 25	Aug 25	Sept 25	Dec 12	Final
Condition per cent	—	—	—	—	—	—	—
1921-22 ..	66.0	69.2	64.7	49.3	42.2	43.2*	—
1922-23 ..	69.6	71.2	70.8	57.0	50.0	52.6*	—
1923-24 ..	71.0	69.9	67.2	54.1	49.5	47.8*	—
Par Values (lbs.)	—	—	—	—	—	—	—
1921-22 ..	223.8	220.0	228.7	257.6	279.6	—	—
1922-23 ..	221.5	213.3	224.1	254.5	278.4	—	—
1923-24 ..	208.0	204.2	214.3	249.5	278.2	—	—
Yield per Acre (lbs.)	—	—	—	—	—	—	—
1921-22 ..	140.6	152.0	148.0	127.0	118.0	127.0	124.5
1922-23 ..	154.0	151.9	157.2	145.2	189.2	141.8	141.5
1923-24 ..	148.0	142.6	143.9	134.8	137.7	128.9*	?
Forecast (000 bales)	—	—	—	—	—	—	—
1921-22 ..	8,000	11,483	8,203	7,087	6,587	8,340	7,954
1922-23 ..	11,200	11,005	11,449	10,573	10,185	9,964	9,762
1923-24 ..	11,800	11,412	11,516	10,788	11,015	10,248*	—

\* 25th October

(C) GINNING RETURN FIGURES OF THE BUREAU OF THE CENSUS,  
WASHINGTON, D C

	1920-21		1921-22		1922-23		1923-24	
	Total to date	Period	Total to date	Period	Total	Period	Total	Period
September 1 ..	352	352	486	486	806	806	1,136	1,136
September 23 ..	2,230	1,898	2,920	2,484	3,866	3,060	8,236	2,100
October 18 ..	5,755	3,505	5,497	2,577	6,978	3,112	6,415	3,179
November 1 ..	7,508	1,753	6,646	1,149	8,140	1,162	7,567	1,152
November 14 ..	8,914	1,406	7,274	628	8,876	780	8,869	802
December 1 ..	10,141	1,227	7,610	866	9,328	447	—	—
December 18 ..	10,876	735	7,791	151	9,405	172	—	—
January 1 ..	11,555	679	7,882	91	9,602	107	—	—
January 16 ..	12,015	460	7,912	30	9,658	61	—	—
March (Final). .	18,271	1,256	7,978	66	9,729	76	—	—

J. A. T.

TABLE 9 WORLD'S CONSUMPTION OF COTTON BY COUNTRIES AND VARIETIES.

*Compiled on the basis of the International Cotton Federation Statistics by JOHN J. TODD, Liverpool.*

	1912-13	1910-20	1920-21	1921-22	1922-23	First Half	Second Half
<b>(1) AMERICAN</b>							
Great Britain ..	3,667	2,891	1,678	2,275	1,919	1,096	823
Per cent. on 1913 ..		79	46	62	53		
France ..	806	671	644	799	790	100	390
Germany ..	1,355	382	683	911	784	118	336
Russia ..	487	-	-	27	122	61	61
Poland ..	-	35	96	170	167	93	74
Finland ..	-	26	29	33	32	16	16
Italy ..	571	549	562	573	601	327	274
Czecho-Slovakia	†	86	208	309	178	91	87
Austria ..	627	-	54	86	61	34	27
Spain ..	285	305	224	294	249	153	94
Belgium ..	171	159	113	136	129	67	62
Switzerland ..	65	37	55	55	57	31	26
Other Continent ..	272	272	235	222	238	123	113
Total Continent ..	4,639	2,542	2,803	3,613	3,408	1,818	1,560
Per cent. on 1913 ..		55	60	78	74	-	-
U.S.A. ..	5,553	6,352	5,188	6,254	6,961	3,162	3,499
Per cent. on 1913 ..		114	93	112	125		
Linters included ..	303	342	516	639	638	337	301
Canada ..	118	118	147	156	175	92	83
Mexico ..	-	-	41	50	20	11	9
India ..	94	0.5	27	34	26	21	5
Japan ..	425	709	622	706	723	393	330
China ..	-	-	35	181	110	73	37
Others ..	16	--	8	10	6	3	3
<b>GRAND TOTAL ..</b>	<b>14,507</b>	<b>12,612</b>	<b>10,544</b>	<b>13,391</b>	<b>13,348</b>	<b>6,999</b>	<b>6,849</b>
Per cent. on 1913 ..		87	73	93	92	-	-
<b>(2) INDIAN</b>							
Great Britain ..	54	56	39	54	107	39	68
Per cent. on 1913 ..		104	72	100	200	--	--
France ..	95	57	69	119	170	74	96
Germany ..	188	79	205	210	220	126	94
Russia ..	21	-	-	-	-	-	-
Poland ..	-	12	19	37	44	20	24
Finland ..	-	-	-	-	-	-	-
Italy ..	175	147	208	200	239	108	131
Czecho-Slovakia	†	8	43	50	61	20	41
Austria ..	154	-	37	25	41	18	23
Spain ..	34	40	59	46	65	37	28
Belgium ..	82	73	91	100	127	59	68
Switzerland ..	3	6	7	6	7	3	4
Other Continent ..	17	24	13	26	30	14	16
Total Continent ..	769	446	770	828	1,004	479	525
Per cent. on 1913 ..		58	100	108	130	-	-
U.S.A. ..	-	12	11	11	21	8	13
Per cent. on 1913 ..		-	-	-	-	-	-
India ..	2,081	2,082	2,188	2,207	2,197	1,182	1,013
Japan ..	993	1,150	1,416	1,480	1,722	845	877
China ..	-	-	145	846	337	171	186
Others ..	-	-	2	-	1	-	1
<b>GRAND TOTAL ..</b>	<b>3,897</b>	<b>3,696</b>	<b>4,571</b>	<b>4,926</b>	<b>5,409</b>	<b>2,724</b>	<b>2,685</b>
Per cent. on 1913 ..		95	117	126	139	-	-

\* Included under Russia.

† Included under Austria.

TABLE 9. WORLD'S CONSUMPTION OF COTTON BY COUNTRIES AND VARIETIES—Continued

	1912-13	1919-20	1920-21	1921-22	1922-23	First Half	Second Half
<b>(8) EGYPTIAN</b>							
Great Britain ..	392	420	237	336	393	184	209
Per cent. on 1913 ..	—	109	60	86	100	—	—
France ..	80	70	42	74	98	46	47
Germany ..	110	16	24	41	37	21	16
Russia ..	87	—	3	7	2	1	1
Poland ..	—	—	5	4	7	4	3
Finland ..	—	—	—	—	—	—	—
Italy ..	19	36	20	22	44	20	24
Czecho-Slovakia ..	†	1	6	9	8	2	6
Austria ..	33	—	2	2	3	1	2
Spain ..	20	25	11	19	33	16	17
Belgium ..	1	2	2	4	4	2	2
Switzerland ..	29	20	20	26	30	14	16
Other Continent ..	1	—	—	2	5	2	3
Total Continent ..	380	170	135	210	266	120	137
Per cent. on 1913 ..	—	45	36	55	70	—	—
U.S.A. ..	134	243	110	156	180	77	103
Per cent. on 1913 ..	—	182	82	116	134	—	—
India ..	1	4	6	10	5	4	1
Japan ..	16	21	16	26	31	14	17
Others ..	14	—	57	10	21	10	11
<b>GRAND TOTAL ..</b>	<b>937</b>	<b>867</b>	<b>561</b>	<b>748</b>	<b>896</b>	<b>418</b>	<b>478</b>
Per cent. on 1913 ..	93	60	80	96	—	—	—
<b>(4) SUNDRIES</b>							
Great Britain ..	161	137	70	199	351	187	164
Per cent. on 1913 ..	—	85	43	124	218	—	—
France ..	29	24	31	43	126	31	95
Germany ..	47	44	25	21	21	12	9
Russia ..	1,913	—	923	393	385	234	131
Poland ..	—	—	13	9	10	8	2
Finland ..	—	—	—	—	—	—	—
Italy ..	25	8	5	5	9	5	4
Czecho-Slovakia ..	†	3	3	6	7	3	4
Austria ..	23	—	1	1	1	—	1
Spain ..	19	20	4	3	4	2	2
Belgium ..	3	1	2	3	12	5	7
Switzerland ..	1	1	—	1	1	—	1
Other Continent ..	24	15	33	30	39	14	25
Total Continent ..	2,084	116	1,040	717	615	314	301
Per cent. on 1913 ..	—	6	50	34	29	—	—
U.S.A. ..	32	160	67	114	98	47	51
Per cent. on 1913 ..	—	500	209	336	300	—	—
Mexico ..	—	125	70	82	116	62	54
Brazil ..	—	401	522	477	555	275	280
India ..	1	10	23	43	24	9	15
Japan ..	155	204	68	70	100	31	69
China ..	—	862	891	867	1,138	623	315
Others ..	1,091	92	28	167	64	32	32
<b>GRAND TOTAL ..</b>	<b>3,524</b>	<b>2,107</b>	<b>2,788</b>	<b>2,736</b>	<b>3,061</b>	<b>1,580</b>	<b>1,481</b>
Per cent. on 1913 ..	—	60	79	77	87	—	—

\* Included under Russia.

† Included under Austria.

TABLE 10. U.S. CONSUMPTION OF COTTON BY VARIETIES. SEASONS  
1921-22, 1922-23 and 1923-24.*From the reports of the Bureau of the Census, Washington, D.C., by J. L. I.*

(American in running bales. Foreign in equivalent 300 lb. bales).

000's omitted throughout

Month	Upland American	Sea Island	American Egyptian	Egyptian	Other Foreign	TOTAL	Imports not included
<b>1921-22 :</b>							
August ..	438.1	1.7	2.5	20.3	1.5	167.1	55.7
September ..	400.9	0.7	2.1	13.9	5.1	184.7	60.7
October ..	466.5	1.0	2.3	18.9	5.6	191.3	65.6
November ..	495.3	0.6	2.5	22.3	7.3	527.9	57.9
December ..	477.1	0.9	3.2	20.8	8.9	510.9	15.4
January ..	495.1	0.7	4.0	20.8	6.2	526.7	13.6
February ..	442.5	0.7	3.8	19.9	5.5	172.3	12.7
March ..	488.7	0.7	4.2	20.4	5.8	519.8	18.6
April ..	416.2	0.6	4.1	16.7	5.5	413.5	10.3
May ..	404.8	0.5	6.7	17.3	6.2	495.3	56.1
June ..	477.8	0.6	7.9	17.2	5.7	509.2	37.8
July ..	438.1	0.6	3.9	15.9	4.3	458.0	53.5
<b>Totals ..</b>	<b>5554.7</b>	<b>9.0</b>	<b>49.4</b>	<b>226.3</b>	<b>70.5</b>	<b>5909.8</b>	<b>639.0</b>
<b>Monthly Averages</b>	<b>462.9</b>	<b>0.75</b>	<b>1.1</b>	<b>18.9</b>	<b>5.8</b>	<b>492.5</b>	<b>53.2</b>
<b>1922-23 :</b>							
August ..	496.8	0.7	7.9	16.7	5.1	527.4	60.8
September ..	408.7	0.7	7.8	13.1	5.1	495.3	59.8
October ..	504.6	0.9	7.6	15.1	5.5	533.9	62.4
November ..	542.9	0.6	6.7	20.4	6.9	577.6	65.1
December ..	494.7	0.5	5.7	21.8	5.9	527.9	40.1
January ..	572.3	0.6	5.0	23.4	7.3	610.4	10.8
February ..	529.1	0.5	4.5	25.8	7.0	566.9	17.6
March ..	583.1	0.4	4.6	27.4	7.6	623.1	51.7
April ..	538.8	0.3	3.9	27.2	7.2	577.4	52.2
May ..	578.0	0.4	4.6	29.2	8.8	620.9	54.7
June ..	508.7	0.4	3.8	22.5	6.7	542.2	19.7
July ..	433.5	0.4	3.1	17.1	7.6	461.6	11.8
<b>Totals ..</b>	<b>6251.1</b>	<b>6.3</b>	<b>65.1</b>	<b>261.3</b>	<b>80.9</b>	<b>6664.7</b>	<b>637.8</b>
<b>Monthly Averages</b>	<b>520.9</b>	<b>0.5</b>	<b>5.4</b>	<b>21.8</b>	<b>6.7</b>	<b>555.4</b>	<b>53.1</b>
<b>1923-24 :</b>							
August ..	464.8	0.4	2.5	17.3	6.5	401.6	48.0
September ..	438.8	0.3	2.5	13.2	7.1	483.9	40.6
October ..	510.0	0.4	3.6	20.2	7.6	541.8	57.1
November ..	..	..	..	..	..	..	..

TABLE II.—WORLD'S MONTHLY CARRY-OVER OF AMERICAN COTTON  
IN THOUSANDS OF RUNNING BALLS

*Compiled by JOHN A. TODD, Liverpool.*

(Including linters in U.S.A., also Sea Island and American Egyptian)

TABLE 12—WORLD'S MONTHLY CARRY-OVER OF EGYPTIAN COTTON  
*Compiled by JOHN A. TODD*  
 (In Thousands of Kantars=100 lbs)

End of	U. K.		Cont.	U. S. A.			Fedn. M'thly	Total, Half- Yearly
	Stock and Afloat	Stock and Afloat	Alex. Stock	Public Ware- houses not known	Mill Stocks	Other Mill Stocks		
1913 August ..	842	15	491	—	354	1,386	1,202	2,588
1914 February ..	688	91	2,606	—	—	2,065	3,594	5,659
August ..	435	10	766	25	259	—	1,405	—
1915 February ..	1,100	232	2,091	51	237	—	3,734	—
August ..	690	64	890	120	156	—	2,220	—
1916 February ..	1,883	125	1,030	202	407	—	3,117	—
August ..	293	27	93	256	580	—	1,249	—
1917 February ..	805	80	1,027	182	384	—	2,478	—
August ..	373	45	326	158	336	—	1,238	—
1918 February ..	574	78	2,503	81	141	—	3,170	—
August ..	353	109	1,107	153	267	—	1,991	—
1919 February ..	576	150	3,188	72	173	—	1,158	—
August ..	713	143	413	58	174	—	1,531	—
1920 February ..	763	211	1,151	235	295	1,715*	2,658	4,373
August ..	364	65	398	420	574	1,239	1,821	3,060
1921 February ..	489	141	1,788	310	416	1,036	3,117	4,183
August ..	504	119	1,883	260	306	938	3,085	4,023
September ..	621	284	1,706	211	282	—	3,034	—
October ..	699	197	2,139	186	241	—	3,402	—
November ..	825	193	2,320	223	273	—	3,834	—
December ..	884	193	2,452	281	293	—	4,103	—
1922 January ..	973	100	2,511	322	317	—	4,313	—
February ..	926	215	2,352	292	341	1,050	4,126	5,176
March ..	928	182	2,269	338	401	—	4,118	—
April ..	859	118	2,105	322	420	—	3,914	—
May ..	621	153	2,080	285	101	—	3,743	—
June ..	814	201	1,857	284	346	—	3,532	—
July ..	779	138	1,660	267	316	—	3,169	—
August ..	739	111	1,332	215	280	1,176	2,727	3,903
September ..	602	106	1,360	192	272	—	2,622	—
October ..	705	203	2,060	183	265	—	3,418	—
November ..	1,020	231	2,671	178	300	—	4,415	—
December ..	1,243	204	2,573	201	291	—	4,514	—
1923 January ..	1,187	251	2,380	285	316	—	4,122	—
February ..	1,187	185	2,186	333	379	1,127	4,270	5,397
March ..	1,177	176	1,950	399	463	—	4,171	—
April ..	1,176	162	1,724	373	528	—	3,963	—
May ..	1,030	148	1,544	335	498	—	3,575	—
June ..	918	116	1,314	314	467	—	3,159	—
July ..	839	120	1,006	257	432	—	2,744	—
August ..	511	103	840	221	379	1,127	2,056	3,183
September ..	460	133	948	185	331	—	2,066	—
October ..	476	224	1,527	171	268	—	2,666	—
November ..	—	—	—	—	—	—	—	—
December ..	—	—	—	—	—	—	—	—

\* Details not known Estimated total about 209,000 kantars.

† Since the war the Federation figures are as at 31st January and 31st July.

TABLE 13. SPOT COTTON PRICES IN LIVERPOOL

Highest and Lowest for each month and Monthly Averages since August 1922.

Month	American Fully Middling			Egyptian F. G. R. Salted			Premium Average Egyptian over American
	High	Low	Average	High	Low	Average	
<b>1922-23 :</b>							
August ..	13.88	12.25	13.19	18.25	16.75	17.25	35
September ..	13.80	12.40	13.14	18.00	17.00	17.44	33
October ..	14.72	12.11	13.51	17.75	17.15	17.50	30
November ..	15.63	14.14	15.00	19.25	17.75	18.58	23
December ..	15.43	14.22	14.77	18.25	17.50	17.74	20
January ..	16.63	13.11	15.80	18.25	17.25	17.81	13
February ..	16.50	15.38	16.01	17.90	17.40	17.52	9
March ..	16.86	15.16	16.33	18.20	17.10	17.75	9
April ..	16.34	15.05	15.07	17.83	17.15	17.39	11
May ..	16.00	14.18	15.02	16.75	15.40	16.02	7
June ..	17.28	15.62	16.48	16.50	15.90	16.27	-2
July ..	16.37	13.58	15.43	16.05	15.25	15.66	1
Season ..	17.28	12.25	15.02	19.25	15.25	17.29	15
<b>1923-24 :</b>							
August ..	15.78	13.40	15.11	16.75	15.35	16.28	8
September ..	18.58	15.43	17.13	19.00	16.80	17.91	5
October ..	17.98	16.38	17.22	19.10	18.05	18.50	7
November ..	21.00	17.78	20.01	26.05	18.65	22.63	13

TABLE 14.—COMPARATIVE PRICES—NEAR FUTURES—ON THE LAST FRIDAY OF EACH MONTH

American Prices reduced to sterling at current Rate of Exchange

Dates	AMERICAN				EGYPTIAN		
	New Orleans		New York		Liverpool	Alexandria	
	Actual	Converted	Actual	Converted	American	Egyptian	
<b>1922-23 :</b>							
August 23 ..	21.22	11.39	21.75	11.61	13.07	17.05	34.95
September 20 ..	20.30	11.08	20.70	11.32	12.03	16.15	31.95
October 27 ..	23.32	12.53	23.65	12.70	13.83	16.50	32.65
November 24 ..	25.13	13.43	25.48	13.63	14.52	17.60	34.70
December 28 ..	26.37	13.70	26.47	13.73	14.79	16.95	33.80
January 26 ..	27.33	14.11	27.64	14.26	15.90	17.50	34.20
February 23 ..	29.43	14.98	29.70	15.12	15.92	16.94	32.80
March 28 ..	28.41	14.53	28.80	14.75	14.84	16.43	33.23
April 27 ..	27.78	14.38	28.86	14.91	14.95	16.50	32.58
May 31 ..	27.34	14.20	27.13	14.10	14.73	15.65	31.75
June 27 ..	27.08	14.13	26.93	14.06	14.97	15.20	30.70
July 27 ..	20.91	10.94	21.52	11.23	12.85	11.70	30.33
<b>1923-24.</b>							
August 31 ..	24.58	12.92	25.07	18.22	14.14	16.00	32.88
September 28 ..	28.18	14.87	28.82	15.19	16.35	17.40	33.81
October 26 ..	30.17	16.11	30.73	16.40	17.02	17.85	31.93
November 30 ..	35.89	19.80	36.15	20.00	21.67	25.96	50.85

J. A. T.



# American Cotton.

Since the last issue of our INTERNATIONAL COTTON BULLETIN the price of American cotton has risen considerably. The last spurt was due to the publication of the National Ginners' Association figures, alleging that the crop would be only 9,320,000 bales ; this was evidently a mistake, as three weeks after the publication of this figure the same organization made it known that the crop would be in the neighbourhood of 10 million bales. This caused a considerable fall in prices, and when the final Department of Agriculture Crop Report was published, giving the indicated total of the crop as 10,081,000 bales, the market at first receded and then at once rose again.

There is no doubt but that we shall see for the next few months a see-saw movement in prices, influenced by speculators ; whether the crop is a quarter or a half million bales larger or smaller than anticipated, this will not alter the final aspect, which is that there will be a shortage of over two million bales of cotton if the spindles of the world are to work even the same amount of curtailment as was in force last year, and so far no effort has been made to reduce further the consumption of cotton.

The outstanding important factor, that consumption would have to adapt itself to the production, was brought home to the spinners as early as July in the cables sent to them by the mission of the International Cotton Federation which visited the cotton fields, but it takes months before such an unpleasant truth permeates through to all interested parties and before they act.

In the opinion of those whom one may consider reliable judges, *spinners should see that they get hold of their cotton.* With the certain shortage of cotton many unexpected things may occur ; though a man may have made a contract, it will not perhaps always be possible for the seller to comply with it. As one spinner told the writer--*his main business at present is carting cotton to his warehouse.*

*Mr. C. T. Revere, of Messrs. Munds & Winslow, wrote in his Market Letter of the 27th October as follows :—*

" I have been in personal touch with a large number of mills throughout the two Carolinas and Georgia during the past few weeks, and it is my opinion that the Southern mills have contracted for more cotton to date this season than any previous year for the same period. Every year there is a more or less forward business, but I do not think that purchases have been made for deliveries as far ahead as is the case this season. Some mills have bought for deliveries running up to next August and September. However, the most of it is to next May, June and July. I know of mills that have bought these deliveries for the first time during their existence. Heretofore, they would make pur-

chases only for two to four months ahead. They were attracted by the exceptionally low basis offered by certain shippers during the summer, and as they could get the long deferred shipments in some cases cheaper than October, November and December, naturally they took it. While their requirements are not fully covered for these months, still they have an excellent average to begin with. So far, they have played in luck *If* the sellers can survive and deliver the goods. Some mills that bought the cheap basis are offering the sellers the privilege of anticipating shipments, and to my mind *these boys are wise*. Up to this time there has been only a small amount of price fixing, as the buyers have been awaiting a further reaction in the market. Some fixation was done around 24 to 26 cents, though very little above this level."

Some interesting problems are involved in this epistolary outline. How are the sellers going to get the cotton? When will the mills fix prices on their contracts? We are likely to know more about these two features in the next month or so, and meantime we think prices will work up considerably. At the moment, it is not so much a question as to whether manufacturers can sell goods at a profit, as one of extricating themselves from a "short" position in which they have been entrapped by another crop failure.

### COTTON ACREAGE ABANDONED.

The Crop Reporting Board of the Department of Agriculture makes a tentative estimate of 5·1 per cent. of the acreage under cultivation in cotton on June 25 as abandoned. This represents approximately two million acres. The heaviest abandonment was reported in Georgia, Mississippi and Oklahoma. By States, the estimate of the acreage abandonment and the 10-year average are:

							Per Cent.	
							1923	10-year average
Georgia	..	..	..	..	..	..	11·6	2·5
Mississippi	..	..	..	..	..	..	9·0	2·5
Oklahoma	..	..	..	..	..	..	8·0	5·2
Missouri	..	..	..	..	..	..	8·6	3·6
Arkansas	..	..	..	..	..	..	7·0	2·8
Louisiana	..	..	..	..	..	..	5·7	3·0
Tennessee	..	..	..	..	..	..	5·0	1·8
Alabama	..	..	..	..	..	..	4·0	2·3
Texas	..	..	..	..	..	..	2·8	3·1
South Carolina	..	..	..	..	..	..	1·5	1·9
North Carolina	..	..	..	..	..	..	0·5	1·6

Migration of labour and the boll-weevil destruction of the crop are responsible for this record abandonment of fields. Texas has probably had a larger abandonment than 2·3 per cent., as the writer found in conversation with crop reporting agents there that they interpret "abandonment" differently from other States. The definition of "abandonment" requires to be made more exact.

The Crop Reporting Board adds to its publication the following remarks: "The average yield of 128·1 lbs. of lint cotton per acre is a computed figure, derived by dividing the total forecast production by the June 25 estimate of preliminary acreage in cultivation on that date. Since the acreage abandonment figures are tentative and subject to revision

on December 12, when the estimate of the percentage of acreage abandoned has always been announced, the Department has not published an estimate of the net harvested acreage for the 1923 crop. The Department, therefore, has not published a yield per acre figure applicable to the harvested acreage, but instead, as stated above, has published a yield applicable to the acreage in cultivation as of June 25. The estimated yield per acre of 128.1 lbs., therefore, is lower than a yield applicable to the harvested acreage, and is not strictly comparable to the final estimate of 141.3 lbs. for the crop of 1922, and a 10-year average yield of 164.3 lbs. per acre. An estimate of the yield per acre applicable to the harvested acreage will not be made until the regular date, December 12.

### U.S.A. GINNERS REPORTS.

#### ANALYSIS OF THE SIXTH GINNING RETURN BY STATES

STATE	Total to 1st December				Balances			
	1920	1921	1922	1923	1920	1921	1922	1923
Alabama .	369	374	804	583	101	14	16	32
Arizona .	57	26	28	32	48	17	16	31
Arkansas .	817	755	976	363	865	33	34	117
California .	38	16	17	32	45	19	11	17
Florida .	16	12	26	13	8	—	1	— 1
Georgia .	1,256	803	712	384	191	20	24	26
Louisiana .	384	276	339	356	56	18	6	— 36
Mississippi .	723	789	964	505	177	28	22	25
Missouri .	44	66	127	88	32	2	13	63
N. Carolina .	612	738	791	940	837	66	88	70
Oklahoma .	771	471	618	508	532	7	19	227
S. Carolina .	1,259	735	493	750	893	51	25	— 10
Tennessee .	210	281	365	200	105	17	21	80
Texas .	3,124	2,076	3,020	8,919	724	54	106	381
Virginia .	10	15	23	38	12	2	4	15
Others .	7	7	15	23	6	2	5	17
Totals .	10,141	7,640	9,820	9,244	3,180	338	411	1,004

The following table will be helpful in the comparison of the new reports with those of previous years :

#### PER CENT OF COTTON CROP GINNED TO SPECIFIED DATES.

Years	Sept. 1	Sept. 25	Oct. 15	Nov. 1	Nov. 14	Dec. 1	Dec. 15	Jan. 1	Jan. 15	Total
1906 ..	3.1	15.8	38.0	53.2	65.9	77.2	85.6	90.4	93.8	100
1907 ..	1.8	13.9	40.0	35.1	66.0	73.5	81.0	90.0	93.3	100
1908 ..	3.1	19.8	48.1	62.6	73.3	84.1	91.0	95.3	96.8	100
1909 ..	3.9	23.5	51.9	69.7	80.5	88.1	92.9	95.8	97.2	100
1910 ..	3.1	20.0	46.9	63.5	73.9	87.7	92.5	95.8	97.3	100
1911 ..	5.0	23.6	49.9	64.1	72.7	82.4	88.3	92.1	93.3	100
1912 ..	5.4	22.3	51.0	65.8	76.4	87.9	92.2	95.7	97.0	100
1913 ..	5.7	23.2	40.9	63.2	71.7	86.5	92.5	93.5	97.1	100
1914 ..	8.0	21.3	47.9	61.8	73.4	82.2	87.8	90.8	98.8	100
1915 ..	4.2	26.2	51.6	66.7	79.2	87.7	93.1	96.1	97.1	100
1916 ..	7.5	35.9	64.3	75.9	84.6	91.1	95.4	97.1	98.0	100
1917 ..	5.5	22.3	49.6	63.9	76.2	86.4	90.1	92.8	94.0	100
1918 ..	8.7	81.7	57.2	65.3	73.1	80.4	86.3	90.5	92.8	100
1919 ..	1.3	16.2	43.3	53.7	67.1	78.1	88.0	88.4	91.0	100
1920 ..	2.6	17.0	43.4	56.6	67.2	76.4	82.0	87.1	90.5	100
1921 ..	6.1	86.6	68.0	83.3	91.2	93.8	97.7	98.8	99.2	100
1922 ..	8.3	89.7	71.7	88.7	91.2	95.8	97.5	98.6	99.2	100
High ..	8.7	39.7	71.7	88.7	91.2	95.8	97.7	98.8	99.2	—
Low ..	1.3	13.9	38.0	53.2	65.9	75.5	82.0	90.0	90.5	—
Average	4.5	24.2	51.6	65.3	75.8	84.9	90.1	93.6	95.4	—

## FINAL ESTIMATE OF COTTON CROP BY DEPARTMENT OF AGRICULTURE.

The preliminary final estimate of this year's cotton crop, issued by the United States Department of Agriculture, shows that the yield is estimated at 10,081,000 bales, exclusive of linters. This compares with 10,248,000 bales estimated in the special report issued on November 2, 9,964,000 bales last year, 8,364,000 bales in 1921, and 13,062,000 bales in 1920. The average weight of the bales is returned at 498.7 lbs., against 503.5 lbs. last year, 497.8 lbs. two years ago, and 506.9 lbs. in 1920, and the average price on December 1 at 31.0 c. per lb., against 23.8 c. last year, 16.2 c. in 1921, and 14 c. in 1920.

The main feature of the States' returns is the increase of one million bales in Texas, the estimated yield of 4,290,000 bales within 55,000 bales of the out-turn in 1920, when the total crop was 13,062,000 bales. Other States showing increases compared with last year are South Carolina (255,000 bales), North Carolina (168,000 bales), Arizona (41,000), Virginia (25,000), California (15,000), and Louisiana (8,000). Decreases are shown of 420,000 bales in Arkansas, 395,000 in Mississippi, 235,000 in Alabama, 180,000 in Tennessee, 135,000 in Georgia, 34,000 in Missouri, 15,000 in Oklahoma, and 13,000 in Florida.

Not included in the total are 86,000 bales grown in Lower California, against 51,000 bales last year.

The following table gives details with comparisons (in thousands) :

	1923		1922	
	Planted (Acres)	Yield (Bales)	Planted (Acres)	Yield (Bales)
Virginia .. .	83	50	57	25
North Carolina .. .	1,704	1,020	1,634	852
South Carolina .. .	2,040	795	1,931	530
Georgia .. .	3,927	590	3,636	725
Florida .. .	171	12	122	25
Alabama .. .	3,312	600	2,807	885
Mississippi .. .	3,353	615	3,076	1,010
Louisiana .. .	1,316	365	1,175	357
Texas .. .	14,077	4,290	12,241	3,290
Arkansas .. .	3,025	620	2,827	1,040
Tennessee .. .	1,193	220	994	400
Missouri .. .	394	115	201	149
Oklahoma .. .	3,357	620	3,052	685
California .. .	*235	40	†210	34
Arizona .. .	133	83	105	42
Other States .. .	115	87	48	15
Total .. .	38,444	10,081	34,156	9,968
Ginned to Dec 1... ..	—	9,244	—	9,314

Revised June, 1923.

\* Includes 157,000 acres in Lower California

† Includes 140,000 acres in Lower California.

## COTTON CONDITION REPORT, OCTOBER 25, 1923.

CONDITION OF COTTON BY STATES AND ESTIMATED CROP  
AND ACRES IN THOUSANDS (000's omitted), AS OF OCTOBER 25.

State	Sept. 25, 1923	Oct. 25, 1922	Oct. 25, 1921	Acre Prelim., 1923	Acre Picked, 1922	Crop 1st Sept. 25, 1923	Crop Final 1922 Census
North Carolina	64	60	60	1,704	1,625	877	852
South Carolina	53	87	39	2,049	1,912	783	403
Georgia	31	38	32	3,927	3,418	700	715
Florida	20	56	47	171	118	13	25
Alabama	42	58	48	8,312	2,771	741	823
Mississippi	37	58	49	3,853	3,014	752	980
Louisiana	45	53	41	1,316	1,140	340	343
Texas	56	56	38	14,077	11,874	4,168	8,222
Arkansas	50	59	56	3,025	2,799	920	1,011
Tennessee	47	62	65	1,103	985	340	391
Oklahoma	49	46	41	3,357	2,915	945	627
California	84	80	80	235	202	44	130
United States Total	49.5	52.6	43.2	38,287	33,036	11,015	9,762

## CONDITION PREVIOUS YEARS.

	May 25	June 25	July 25	Aug. 25	Sept. 25
1913 ..	79.1	81.8	79.6	68.2	64.1
1914 ..	74.3	79.6	76.4	78.0	73.5
1915 ..	80.0	80.2	75.4	69.2	60.8
1916 ..	77.5	81.1	72.3	61.2	56.3
1917 ..	69.5	70.3	70.3	67.8	60.4
1918 ..	82.3	85.8	73.6	55.7	54.1
1919 ..	75.6	70.0	67.1	61.4	54.4
1920 ..	62.4	70.7	74.1	67.5	59.1
1921 ..	66.0	69.2	64.7	49.3	42.2
1922 ..	69.6	71.2	70.8	57.0	50.0
10 years' average ..	73.6	76.0	72.4	63.5	57.5
1923 ..	69.6	69.9	67.2	54.1	49.5

Average gain in October for two years, 1.8 points.

AREAS PLANTED, PICKED, YIELD AND CROP.  
(000's omitted.)

	Planted	Picked	Yield	*Crop
1913 ..	37,458	37,080	182.0	14,156
1914 ..	37,406	36,832	200.2	16,135
1915 ..	32,107	31,412	170.3	11,192
1916 ..	36,052	34,985	150.6	11,450
1917 ..	34,925	33,841	159.7	11,302
1918 ..	37,207	36,008	159.6	12,041
1919 ..	35,183	33,566	161.5	11,421
1920 ..	37,043	35,878	178.4	18,439
1921 ..	31,678	30,509	124.5	7,953
1922 ..	34,016	33,036	141.3	9,762
1923 ..	38,827	—	—	—

Average yield 10 years, 164.3 per acre.

Average crop past five years, 10,923 bales.

\* 500 lbs. Gross.

## AMERICAN COTTON CROP—AVERAGE YIELD PER ACRE BY STATES.

(U.S. Department of Agriculture figures.)

Seasons—Averages	Texas	Ark.	Ia.	Okla.	Mis.	Fa.	Ga.	Georgia	Tenn.	S. C.	N. C.	Va.	No.	Whole Belt
1886-1895	198	214	211	150	182	125	150	152	165	158	171	156	224	175·9
1896-1905	168	205	235	228	206	122	162	171	182	186	199	178	212	192·6
1900	226	223	234	307	151	133	151	172	177	167	199	180	275	194·4
1901	159	173	260	206	205	117	156	167	136	141	142	176	146	170·9
1902	148	208	262	257	220	120	144	165	252	199	236	248	352	157·3
1903	142	196	223	228	211	142	161	158	200	178	210	180	232	154·2
1904	183	205	265	248	220	140	182	205	202	215	233	204	270	205·9
1905	164	172	215	190	144	173	209	212	220	240	204	294	186·6	186·6
1906	225	275	272	217	215	102	165	165	180	175	201	185	285	202·5
1907	130	193	210	200	228	113	169	190	190	215	205	190	275	179·1
1908	215	196	145	143	233	112	179	190	218	218	211	210	340	194·9
1909	132	133	130	147	137	110	142	184	152	152	210	190	271	154·3
1910	145	175	120	206	182	110	160	173	207	216	227	212	285	170·4
1911	186	190	170	160	172	130	204	240	257	280	315	310	360	207·7
1912	206	190	193	183	173	113	172	150	169	169	209	207	250	190·9
1913	150	205	140	132	204	150	190	208	210	233	240	246	246	192·0
1914	184	196	165	212	195	175	209	239	200	255	290	265	270	209·2
1915	145	180	165	162	165	120	146	189	188	215	260	225	240	170·2
1916	157	209	170	154	125	105	79	165	206	160	215	225	156·6	156·6
1917	132	140	210	165	153	100	122	173	130	208	194	180	190	152·4
1918	115	158	167	92	85	49	149	190	175	250	268	270	200	154·7
1919	140	135	98	195	160	74	122	152	195	240	266	255	257	161·2
1920	174	195	126	230	145	86	111	138	185	260	275	230	275	178·4
1921	98	160	114	104	145	90	124	100	228	140	264	230	323	124·5
1922	130	175	144	103	127	97	100	190	123	250	225	360	144·5	122·2
1923 25th Oct. forecast	146	108	110	105	88	34	74	92	173	305	183			

The figures are underlined when they drop below the average of 1886 to 1895.

The figures printed in italics are "peak" yields.

The figures printed in heavy type are the lowest yields, and drop below the average of 1886 to 1895.

*Fenner & Beane, New Orleans, who were remarkably right in their forecasts of the 1922/23 crop, issued the following circular on October 25, 1923:*

"We feel the Government's action in announcing a condition and crop estimate as of October 25 is a clear admission of its belief in the inaccuracy of its September forecast. We also feel it vindicates us in our insistence that its figures were very incorrect. Therefore, we are content to stand on the correctness of ours (10,273,000 bales) and believe they will be confirmed by the final turnout. Our usual final estimate will be issued in December."

*Cotton crop estimate by A. Norden & Co., New York, dated November 12, 1923 :*

We present herewith our annual estimate of the American cotton crop. The figures are running bales, two round bales counted as one, and lint cotton only, linters excluded :

	BALES
North Carolina	1,000,000
South Carolina	775,000
Georgia	600,000
Alabama	625,000
Mississippi	650,000
Louisiana	350,000
Texas	3,900,000
Oklahoma	575,000
Arkansas	650,000
Tennessee	250,000
Sundries	375,000
Total	<u>9,750,000</u>

This estimate has been made by the same methods that enabled us to attain such accurate results in former years, as follows :

Our estimate Nov. 10, 1922 9,600,000 bales. Final Census, 9,729,306 bales.  
 " " " 10, 1921 8,000,000 " " " 7,977,778 "  
 " " " 12, 1920 13,000,000 " " " 13,270,070 "

*Mr. C. T. Revere, of Munds & Winslow, writes under date 17th November in his weekly market letter as follows :*

"It looks as if we were going to have a crop of somewhat less than 9,750,000 bales, which with linters of say 500,000 would give a maximum of 10,250,000 bales. Total supply, including carry-over, linters and everything, 12,750,000. Consumption last season (Hester) 12,631,000. Obviously, the mills of the world have before them the task of contracting their use of American cotton by fully two million bales compared with last season. When is the process going to begin? October consumption by American mills of 541,000 bales, against 534,000 last year, gives no suggestion of it. Both in this country and in Europe, absorption appears to be on a moderately rising scale. Three-and-a-half months of the new season have gone, and by the end of November, four months.

will have elapsed. It looks as if the cotton trade would be faced by unparalleled economic convulsions when spinners attempt to crowd this essential contraction into the remaining eight months of the trade year. Such a readjustment probably can be compelled only by a price upheaval of unprecedented proportions.

*"It requires little speculative imagination to picture what would happen if the mills, confronted by the necessity of curtailing operations to the extent of two million bales, or two months' consumption, keep on at the present rate of operations and attempt to crowd their curtailment into the last three or four months of the cotton year."*

This very question has been dealt with in the special article in this issue, entitled "American Cotton Talks," written by Mr. F. Holroyd, President of the English Federation of Master Cotton Spinners' Association, Ltd., Manchester, and Vice-President of the International Cotton Federation.

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## THE GROWTH OF CO-OPERATIVE COTTON MARKETING.

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During the past season the Georgia Cotton Co-operative Association signed up 24,318 new members, bringing the total up to 38,000. Oklahoma was second with 15,495 new members and total membership of 50,362. Texas had 10,094 new members and total of 30,134; Alabama had 9,300 new members and total of 20,300; Mississippi showed a gain of 7,354 for a total of 18,040; North Carolina gained 1,535, to a total of 31,069; South Carolina gained 2,332 to a total of 13,600; Arkansas increased 4,363 to 10,697; Tennessee gathered 6,441 for the first year of the Association; Louisiana gathered 741 new members bringing the total to 5,159, while Missouri and Arizona were unchanged with 528 and 1,263 memberships. Total new members in all States was 81,973, bringing total memberships in all State Associations up to 225,613.

The South Carolina Cotton Growers' Co-operative Association had received up to the close of October 12,000 bales more than up to the same time last year, and it is believed by the officers of the Association that the grand total for the season will be 25 per cent. more than last year, when 40,000 bales were delivered.

To October 27, the Staple Cotton Co-operative Association had sold this season 25,709 bales of cotton, a large part of which is for future delivery and the price subject to sellers' call. At the same date last year the Association's sales for prompt and future delivery aggregated 19,711 bales. The first distribution was made October 31.

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## DIVERSIFICATION OF CROPS IN U.S.A.

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*Commerce Monthly*, a journal published by the National Bank of Commerce, New York, publishes an article on this topic. The following table shows the percentage of total acreage planted to the principal crops

in U S A in 1922 which is instructive even to the cotton user as it will show him that only in the West South Central put cotton is the predominating crop. The boll weevil will sure to cause a further reduction of the acreage east of the Mississippi.

PERCENTAGE OF TOTAL ACRES PLANTED TO PRINCIPAL CROPS IN THE UNITED STATES IN 1922

	1st 11 S. E. C. N. C. S. S. C.	2nd N. E. N. C. N. S. S. E.	Mid- Atlan- tic	3rd N. W. W. C. C. S.	4th N. W. W. C. C. S.	5th Ad- Am- erica	6th S. W. C. S. C. S.	7th S. W. C. S. C. S.	8th M. W. C. S. C. S.	9th M. W. C. S. C. S.
Corn	—	—	14.8	2.56	2.2	8.1	44.0	—1.63	5.4	1.6
Wheat	16.10	1.10	13.5	23.06	5.04	3.0	—4.74	—2.74	25.11	—
Oats	10.18	3.10	1.51	16.4	1.1	4.0	0.0	0.1	1.3	1.11
Birds	1.13	—	—	—	—	30	0.1	0	—2.04	4.68
Buckwheat	—	4.4	—	1.54	—	—	2.0	0.1	—	—
Rye	1.18	1	1.54	—	—	—	40	11	0.8	—
Soybeans	1.1	4.8	3.6	1.1	—	30	1.1	3	—	1.56
Sweet Pot.	0	—	—	0	0	1.38	1.08	0	1.01	1.0
Tobacco	4	—	2.5	1	—	—	—	—	—	—
Peaches	—	—	—	—	0.1	5.1	—	—	—	—
Rice	—	—	—	—	—	—	0.1	—1.71	—	—
Hay (lame)	16	1	1.09	—4.3	10.3	1.2	1.38	4.6	1.12	—4.98
Cotton	—	11	—	—	—	1	1.1	3.3	—3.3	1.33
Lemnads	—	—	—	—	—	—	9.1	43	—	—
Beans	—	—	—	—	—	—	—	—	—	—
All other crops	1.21	0.13	—1	—1	1.54	1.0	0.8	10.11	—4.00	24.3
Total acreage	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

\* Less than 00.1 percent

The article concludes with the following paragraph. While cotton, corn, wheat, oats and hay are the major crops of the other groups of States (except New England) there are many minor crops adapted to grow in these areas that harmonize in a balanced agricultural system, thereby enabling the farmer to build up soil depleted of humus and plant food, eliminate transport charges on those articles of food he can raise at home, and inject into agriculture the element of safety reasonably assured by diversified investments in the business world."





## Egyptian Cotton.

*Special Market Report from Messrs C. Lattersall & Co Royal Exchange  
Manchester, dated 17th December 1923*

We are able to report that during the last few months transactions of considerable importance in Egyptian cotton have passed through our offices, and we anticipate an ever-increasing business as American cotton becomes scarce. Every pound of Egyptian cotton grown will be wanted about this time does not seem the slightest doubt and during the past few weeks shrewd spinners have taken the necessary steps to get their actual cotton placed into their own warehouses.

Under the present precarious cotton supply conditions which are bound to become accentuated in the near future, it behoves all spinners whether they use Egyptian American or other growths to see to it that they have sufficient cotton in stock to last them as far as September for it must be realized, that there will be many sellers in the U.S.A. and elsewhere unable to tender the quantity of cotton they have actually sold. Careful observers are even inclined to the opinion that the U.S.A. will enact an impeachment prohibiting the exports of cotton from the U.S.A. when it has been brought home to the heads of the Government that many spindles in that country will be stopped owing to shortage of cotton. The legality of such proceedings would undoubtedly be contested in various law suits but the final decision of these would be delayed until after the danger point has been passed. At first sight such a suggestion may seem to be emanating from an alarmist, but, after all, on closer examination one is bound to recognize that such action would be based on the law of self-preservation. The U.S.A. cotton-spinning industry is likely to suffer more from the cotton famine than any other country if the exports are allowed to go on unchecked, for the consumption of cotton per spindle there is greater than in any other country and the Sherman Law stands in the way of organized curtailment of cotton consumption in the U.S.A.

Those mills who intend to work at anything like full time during the next nine months will be well advised to obtain the actual cotton, even at present prices. We are bound to see considerable fluctuations up and down during the next few months, but it would appear that neither Egyptian nor American cotton have reached the peak prices.

*J. G. Joannides & Co., of Alexandria summarize their Market Report of 5th October as follows*

Taking everything into consideration, we estimate that subject to the present weather continuing, the final yield of both Upper and Lower Egypt will be between 6 and 6½ million cantans. With such a prospective yield, the supply for next year may be summed up as follows:

Stocks in mills .. .. .. ..	220,000 bales
Visible supply to 31st July .. .. .. ..	286,000 bales
1923 crop (6 millions) .. .. .. ..	800,000 bales
<hr/>	
Less	1,306,000 bales
Consumption on a basis of 5 per cent. over 1922-23 figures .. .. .. ..	945,000 bales
General carry-over at 31-7-24 .. .. .. ..	361,000 bales

It looks, therefore, as if an ample supply is assured for all requirements even on an increased basis over last year's record figures and prices should therefore continue to be reasonable, whilst following moderately any rise in the price of American cotton. The Government estimate of the yield for 1923 is on a basis of 3.08 cantars per acre, which on the Government's estimate of acreage for this season points to a top crop of 4,907,000 cantars.

### EGYPTIAN COTTON ACREAGE.

The Alexandria General Produce Association have just published the statement below showing the acreage of the different varieties of cotton planted in Egypt, according to Provinces, with comparative figures for 1922 and 1921.

The figures are compiled by the Government's Statistical Department.

#### LOWER EGYPT

	1923	1922	1921
Galioubich .. .. .. ..	Feddâns 59,700	Feddâns 53,080	Feddâns 51,644
Charkieh .. .. .. ..	200,200	169,511	163,606
Dakahlieh .. .. .. ..	199,200	192,596	169,483
Garbieh .. .. .. ..	372,900	372,301	311,376
Menoufieh .. .. .. ..	100,200	103,073	102,007
Béhéra .. .. .. ..	255,800	210,807	184,233
TOTAL .. .. .. ..	1,191,000	1,111,367	1,012,349

#### UPPER EGYPT

	1923	1922	1921
Ghizeh .. .. .. ..	Feddâns 32,200	Feddâns 32,426	Feddâns 24,256
Beni-souef .. .. .. ..	78,700	60,443	56,678
Fayoum .. .. .. ..	91,000	92,180	82,113
Ghîrghîeh .. .. .. ..	5,000	3,223	366
Minich .. .. .. ..	121,300	102,363	88,003
Assiout .. .. .. ..	58,400	57,668	26,791
Keneh .. .. .. ..	6,800	5,181	3,844
Assouan .. .. .. ..	700	300	2,078
TOTAL .. .. .. ..	394,100	353,779	279,529

GRAND TOTAL for 1923, 1,588,100 Feddâns against 1,465,146 Feddâns in 1922  
1,291,878 Feddâns in 1921 and 1,827,870 Feddâns in 1920.

## VARIETIES CULTIVATED

	Mitaffi	Ahossi	Joannov.	Ashm.	Nubari	Sak.	Assil.	Zag.	Pill.	Sundries
LOWER EGYPT	Fed.	Fed.	Fed.	Fed.	Fed.	Fed.	Fed.	Fed.	Fed.	Fed.
Galloubieh ..	1,375	-	10	2,896	1,271	34,520	553	9,726	-	340
Charkieh ..	1,998	1,561	-	1,150	4,162	180,224	2,080	1,052	-	1,064
Dukahlich ..	672	58	-	142	1,680	195,006	813	-	-	223
Garbich ..	26	67	-	1	25	364,403	1,752	-	-	2,623
Menonflich ..	-	41	3	153	309	100,901	4	287	-	4,408
Beheia ..	512	--	-	-	183	253,706	219	-	-	1,180
Total ..	4,583	1,730	13	4,353	7,038	1,148,309	6,021	11,063	-	9,928
UPPER EGYPT										
Celzech ..	838	-	-	13,192	1,923	13,505	878	1,477	-	2
Beni-Souef ..	-	--	-	10,980	-	-	-	67,720	-	-
Payoum ..	-	-	3,461	85,515	-	-	-	2,003	-	19
Qhiggeh ..	78	42	105	4,161	1	12	1	-	-	-
Minieh ..	-	-	14	107,102	-	-	-	8,610	-	5,574
Assiout ..	-	-	3	53,199	-	-	-	2,898	-	-
Keneh ..	100	--	186	5,760	-	60	351	328	-	6
Assouan ..	-	-	-	-	-	-	-	700	-	-
Total ..	1,016	42	4,060	292,818	1,024	13,867	1,925	83,738	-	5,601

## GRAND TOTALS

	1923	1922	1921
Afifi Assil ..	..	7,246	6,362
Mit-Afifi ..	..	5,590	6,629
Abassi ..	..	1,772	1,908
Joannovich ..	..	4,082	317
Ashmouni ..	..	287,171	234,749
Nubari ..	..	9,562	8,943
Sakellaridis ..	..	1,162,036	1,095,805
Zagora ..	..	94,803	102,560
Pillion ..	..	-	20
Sundries ..	..	15,520	8,253
	1,588,100	1,165,138	1,291,878

The Government having rectified after their publication, the acreage figures for 1923 the total of each variety planted has to be altered as below.

	Feddâns	Feddâns
Afifi Assil ..	..	7,878 instead of 6,362
Mit-Afifi ..	..	8,178 .. 6,629
Abassi ..	..	2,274 .. 1,908
Joannovich ..	..	885 .. 317
Ashmouni ..	..	276,193 .. 231,749
Nubari ..	..	11,084 .. 8,943
Sakellaridis ..	..	1,357,197 .. 1,095,805
Zagora ..	..	126,531 .. 102,560
Phillion ..	..	27 .. 20
Sundries ..	..	10,146 .. 8,253
TOTAL ..	1,799,843 ..	1,465,130

## EXPORTS OF EGYPTIAN COTTON FOR SEASON 1922/23

(as per details compiled by the Alexandria General Produce Associations)

	Cantars
Arrivals at Alexandria (sacks and bales) ..	.. 6,659,678
To be added for rectifications at the end of the year ..	.. 58,684
Cantars ..	6,718,312

## EXPORTATIONS FROM ALEXANDRIA

		BALES		BALES	CANTARS
Germany	..	19,092	{ Hamburg .. ..	13,121	
			Biemen .. ..	5,071	
England	..	403,045	{ Liverpool .. ..	238,334	
			Manchester .. ..	164,522	
			Hull .. ..	189	
Belgium	..	7,108	{ Antwerp .. ..	6,880	
Spain	..	29,537	Ghent .. ..	228	
Estonia	..	660	Barcelona .. ..	29,537	
United States	..	211,417	Reval .. ..	660	
			Boston .. ..	182,502	
France	..	111,185	New York .. ..	28,015	
			Marseille .. ..	54,784	
Holland	..	3,627	Dunkirk .. ..	49,410	
India and China	..	1,627	Havre .. ..	9,991	
			Rotterdam .. ..	3,579	
Italy ..	..	117,146	Amsterdam .. ..	48	
			Bombay, etc. .. ..	1,627	
			Genoa .. ..	51,587	
			Venice .. ..	33,010	
			Trieste .. ..	26,847	
			Leghorn .. ..	1,797	
			Naples .. ..	3,903	
Japan .	..	33,711	Kobe and Yokohama .. ..	33,711	
Portugal	..	925	Oporto and Lisbon .. ..	925	
Poland	..	426	Danzig .. ..	126	
Russia	..	1,450	Petrograd .. ..	1,150	
Sweden	..	560	Gothenburg .. ..	500	
Greece and Syria	..	792	.. .. .. ..	792	
				915,328	7,171,812

Various samples Cantars 724

*Reinhart & Co., Alexandria, report under date, 8th November, 1923 :*

Our market has been very firm and active during the week under review. As a consequence of the advance in America and the heavy demand from spinners, we close with nearly 400 points advance for Sakellaridis and 380 points for Upper Egypt, compared to last week. We consider the actual parity between the two growths to be in favour of Sakellaridis. The statistical position of this variety cannot be compared to what it was at this time last year, especially as Lancashire and the United States are taking more and more interest in Sakellaridis. We are of opinion that when a larger proportion of our Sakellaridis crop will be sold, the parity between our cotton and American will increase rapidly in favour of Sakellaridis.

Our spot market has also been very active this week with a turnover of about 41,000 bales. The demand runs principally on medium and low grades of all varieties. Lancashire has bought freely Sakellaridis medium grades. America has taken heavy lines in Sakellaridis medium and low grades. Continental spinners have also been heavy buyers of Uppers all grades.

The Alexandria General Produce Association have issued their crop estimate at c. 5,960,000. According to our private information this estimate is rather on the low side and we confirm our previous one at 6,250,000 cantars.

## STATE AND PROSPECTS OF THE CROPS.

The weather was rather unsettled in the majority of provinces during the month under review. The rain which fell in Lower and Middle Egypt towards the middle of October slightly affected the crop, delaying progress of picking. A small proportion of the crop still remains to be picked in Lower and Middle Egypt. The second picking has given somewhat better returns in some districts than was at first hoped for. Ginning out-turns are reported to be poorer than last season.

*Messrs. Reinhart & Co., of Alexandria, Egypt, write as follows on Nov. 15 :*

"The parity between Sakellaridis and Uppers has again widened to 245 points and it is generally believed that the same will widen further, as Lancashire and the United States have recently bought heavy lines in Sakellaridis medium and low grades.

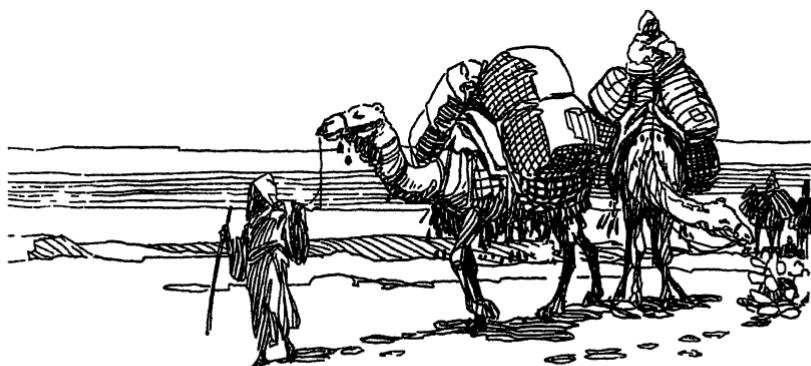
"It is rumoured that several export firms, established during and since the war, are experiencing great difficulty in covering their sales in such grades.

"Although the advance might *prima facie* seem considerable, yet if you take into account the exceptional firmness prevailing on the American markets, the gradual exhaustion of the world's stocks and the heavy purchases of spinners all round, this advance is not exaggerated. On the contrary, if the political situation had been normal, we are of opinion that we would have experienced a more important rise in prices.

"With regard to the parity between Americans and Egyptians, we think that this must widen further in favour of our growth as spinners of Egyptians are now in a much better position than those using American cotton."

*J. G. Joannides & Co., Alexandria report :*

**NEW CROP.** The news of the crop in the Delta, as far as Sakels are concerned, continue to improve and it is now thought in our market that the crop may even exceed six millions in all. The first picking has been practically completed everywhere and results, although irregular, are more or less satisfactory. The second picking is being finished in the southern districts and is about equal to the first. In Upper Egypt the results are somewhat less brilliant than at first expected, but are, nevertheless, over last year's. We confirm our previous estimate of the crop.





## East Indian Cotton

### GOVERNMENT'S SECOND COTTON FORECAST, 1923-24.

*Calcutta, October 18, 1923.*

This forecast is based on reports furnished by the undermentioned Provinces and States, which comprise the entire cotton area of India. It relates generally to sowings made up to October 1.

The total area so far reported this year amounts to 17,831,000 acres, which is 2 per cent. above the revised estimate at this date last year.

Seasonal conditions have not been quite favourable, and the present condition of the crop is, on the whole, reported to be fair.

The detailed figures for the Provinces and States are given below :

#### SECOND FORECAST, OCTOBER.

Provinces and States	Acres (thousand)		
	1923-24	1922-23	1921-22
Bombay-Deccan (including Indian States) .. . . . .	3,924	4,216	3,927
Central Provinces and Berar .. . . . .	4,862	4,633	4,451
Madras .. . . . .	827	675	459
Punjab (including Indian States) .. . . . .	1,412	1,273	1,326
United Provinces (including Indian States) .. . . . .	636	651	971
Burma .. . . . .	209	†264	300
Sind (including Indian States) .. . . . .	261	197	158
Bihar and Orissa .. . . . .	79	†78	77
Bengal (including Indian States) .. . . . .	71	70	64
Ajmer-Merwara .. . . . .	25	28	23
Assam .. . . . .	38	38	39
North-West Frontier Province .. . . . .	18	19	18
Delhi .. . . . .	1	2	4
Hyderabad .. . . . .	3,022	3,227	2,509
Central India* .. . . . .	936	†835	684
Baroda .. . . . .	688	576	500
Gwalior .. . . . .	†445	330	274
Rajputana .. . . . .	277	295	275
Mysore .. . . . .	60	80	30
Total .. . . . .	17,831	†17,487	16,098

\* Excluding Gwalior which has been shown separately. † Revised. ‡ Repeated from first forecast, no later information being available.

The estimates of area classified according to the recognized trade descriptions of cotton are not yet completely available.



## Brazilian Cotton.

The new book "COTTON IN NORTH BRAZIL," which is the outcome of the second journey of the General Secretary (Arno S. Pearse) of the International Cotton Federation to the cotton growing States of North Brazil, will be sent to every member of the Federation, along with this BULLETIN. This book deals particularly with the cotton position in Ceará, Maranhão and Pará.

The outlook in Ceará is especially promising in view of the irrigation works which the Federal Government is carrying out there at present; some of the reservoirs under construction in Ceará are larger than the famous one at Assuan in Egypt. The Ceará Government has recently asked the International Cotton Federation to engage on its behalf a cotton classer and a cotton breeder. Both have now been engaged. The cotton classer is Mr. Harold C. Egan, of Messrs. S. M. Bulley & Son, 3, Old Hall Street, Liverpool, who has already commenced his activities in Ceará, and the cotton breeder is Mr. B. G. C. Bolland, who has had seven years' experience of cotton breeding with the Ministry of Agriculture in Egypt. The latter sailed for Brazil on the 14th December. The President of this State, Mr. ILDEFONSO ALBANO, takes an exceedingly keen interest in all cotton matters; he has travelled through the U.S.A. cotton belt and has studied the cotton cultivation there and in his own country. The fact that the Government has engaged these experts in response to an advocacy of the International Federation is another proof of the recognition on the part of those in power of the possibilities which Ceará offers as regards cotton growing and of the earnestness which the Government is devoting to the problem.

The original edition of "BRAZILIAN COTTON," the first Report on Brazil published by the Federation, having become entirely exhausted, a reprint has been made. The demand for this book has exceeded all expectations. The price of "BRAZILIAN COTTON" and of "COTTON IN NORTH BRAZIL," is £1 1s. each to non-members of the International Cotton Federation. The Brazilian Government has ordered 1,000 copies of each of these volumes.

### PERNAMBUCO.

*The British Bank of South America, Ltd., November 21, 1923 circular.*

The crop is expected to slightly exceed that of last year. The "Seredó" and "Matto" types are stated to be of fair average quality, but the "Sertão" type is distinctly inferior to that of the previous crop.

The market is well sustained and prices have been rising steadily. There is a good demand both from Rio de Janeiro and São Paulo. The prices at the date of writing are as follows :

Sertão, la. Sorte .. .. .. ..	Rs.82\$000 per 15 kilos
Mediano .. .. .. ..	Rs.77\$000 .. .. ..

For the purpose of comparison, we quote the prices on 31st August, 1923, as compared with 31st July, 1923 :

		31st August, 1923	31st July, 1923
Sertão, 1a. Sorte .. .. ..	Rs.73\$000 ..	Rs.65\$000	
Mediano .. .. ..	Rs.70\$000 ..	Rs.60\$000	

Entries for the total of the 1922-1923 crop (i.e., September, 1922 to August, 1923) amounted to 138,394 bales of (80 kilos), as compared with 171,154 bales for the 1921-1922 crop, showing a difference of 32,760 bales in favour of the 1921-1922 crop.

Shipments for the 1922-1923 crop amounted (in all) to 171,355 bales, as compared with 191,458 bales for the 1921-1922 crop, showing a balance in favour of the 1921-1922 crop of 30,103 bales. Of the total shipments for the 1922-1923 crop by far the larger portion, viz., 111,074 bales, was used for home consumption (chiefly by the Rio de Janeiro and São Paulo cotton mills). The remainder was all shipped to Europe, the largest purchaser being Portugal with 31,936 bales, followed by England with 20,648 bales. The remaining 7,697 bales were disposed of as follows :

	Bales		Bales
To Belgium .. ..	3,026	To Holland .. ..	584
„ Germany .. ..	2,851	„ France .. ..	449
„ Italy .. ..	837		

#### PERNAMBUCO COTTON.

The market throughout September has shown an upward tendency, and prices rose from 80\$000 to 82\$000 for Firsts, on which basis local factories bought. The average price paid during the month has been round about 80\$000, and the market throughout has been firm, and a fair amount of business was done. There is, however, very little cotton to be had, and the general report is that the cotton crop this year will be small, and in consequence high prices may be expected to be maintained. Entries during the month of September amounted to 9,232 bales, against 3,231 bales during the same month last year, an increase of 6,001 bales. Total shipments during September amounted to 1,769 pressed bales of 178 kilos each.

#### SÃO PAULO COTTON.

The following quantities were exported from Santos from 16th August to 15th September.

Bales	kilos	to
239	60,887	Hamburg
356	45,341	Havre
23	7,344	Antwerp
<hr/>		
618	113,572	

(London & River Plate Bank, Ltd., November Circular.

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#### PERUVIAN COTTON

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The heavy shipments of cotton continued through the month of September and the market remains active. Smooth and Tanguis are at present the most conspicuously active varieties. April floods in the Piura cotton district will cause a loss of 50 per cent. of the total first crop of the full rough variety, according to the latest estimates. Cotton exports during the month of July amounted to 4,508,689 kilos, as compared with 3,349,944 kilos exported in June.

A cotton-growing expert who had managed an estate in Peru for two years told the writer that the cost price of producing the best kinds of Peruvian cotton was 7½d. per lb. f.o.b. Peruvian port. What is the industry paying ?

## The World's Cotton Situation.

**V**OLKART BROS., Winterthur, market letters are always instructive reading, but those published on October 29 and December 11 seem to us to be so full of informative arguments, especially as regards the Far East, that a rather copious extract from this circular may be excused.

Messrs. Volkart say : " We had expressed in our preceding circular the view that, even a crop of 11 million bales would necessarily provoke a sharp rise of prices, that this rise would, however, not put the consumer out of countenance, since we had, already in February, seen 32 cents in New York ; a level between 30 and 35 cents would, therefore, be nothing but the adjustment of the entirely erroneous views ruling the market during spring and summer. This opinion was based on the present possibilities of consumption of American cotton compared with the International Census figures for 1922-23, 1921-22 and for 1912-13, the last pre-war season for which exact official figures are available :

	Estimate of probable consumption with cotton at 30 cents in New York	000's omitted		
		American according to the International Census		1912-13
		1922-23	1921-22	
Great Britain . . . . .	about 2,000	1,919	2,275	3,667
Germany . . . . .	600	784	911	1,312
France . . . . .	" 740	790	799	806
Belgium . . . . .	" 120	129	136	171
Switzerland . . . . .	" 40	57	55	65
Poland and Soviet-Russia . . . . .	200	280	197	612
Italy . . . . .	" 300	601	573	570
Spain . . . . .	" 250	240	294	285
Portugal and Holland . . . . .	" 100	127	128	170
Denmark, Sweden, Norway, Finland . . . . .	" 100	143	132	177
Czecho-Slovakia . . . . .	" 200	178	309	
Austria . . . . .	" 50	61	86	627
United States . . . . .	5,600	6,323	5,615	5,553
Japan, China, India, Canada, Mexico . . . . .	" 900	1,054	1,337	693
Total . . . . .	11,400	12,704	12,842	14,708

" This prospect calls for the greatest caution, especially since our calculation is based on a reduced consumption, as compared with last year, in almost every country with the exception of Great Britain, whose takings during 1922-23, in our opinion, represent about the minimum that Lancashire really *must* have in order to just carry on ; if there were sufficient cotton available, we would have earmarked two-and-a-quarter million bales for Great Britain. We have already made a very marked cut into the consumption expected for 1923-24 in the U.S.A. and for this reason we fail to appreciate the wave of pessimism which inundated the American markets at the news of the partial closing of the Amoskeag mills ; for, if the U.S. were to consume 800,000 bales less than last year, i.e., only as much as two years ago, there would yet remain a shortage of cotton for the other interested countries.

" On the above statement of consumption we have based our market view that 30 cents would be a *perfectly justifiable* level of price, and that

35 cents were *possible*, both statistically and psychologically. We only warn our friends against blindly accepting and following the *bull's* theories. We fear a recurrence of the events of last spring when the price level for the *crop to come* undermined the old crop's position which had seemed unshakable, and finally brought it to a collapse. We owe it to the unfavourable weather conditions, to the expectation of a reduced crop estimate and to the revival of enterprise in the American industry, that a drastic correction of prices has taken place during the last fortnight which drove up New York spot to 31·75 cents, December to nearly 31 cents, and Liverpool futures to 18d.—nearly as high as during the war, or during the 1919-20 campaign of 'General Frenzy.' To-day we survey the dismal picture of the world's supply better than a month ago when the possibility of larger yields was yet in sight. We cannot, however, refuse to own that, in all probability, the brunt of the burden will have to be carried rather by the manufacturer than by the small consumer, that is by the manufacturer who endeavours to work his plant to a high degree of its capacity rather than curtail his production and husband his resources of raw material. The '*mene tekel*' of heavy discounts for new crop which, last spring, broke the old crop's neck, already now appears on the wall. October 1923, in Liverpool stands at 17·76d. and October, 1924, at 14·25d., and while we know as yet nothing at all about next year, cotton of the 1924 crop is quoted 3½d. lower than ready. *These discounts are likely to grow yet, the higher prices for old crop will rise, but we fear that, in these discounts lies the germ of disintegration for the apparently incontestable position of the American market.*

"We should not like to prophesy that the present squeeze will *not* last into the summer months. We were a good deal concerned that the much advertised fight against the boll-weevil turned out a failure. The weevil *will* remain a powerful ally of the farmer. On the other hand we must bear in mind that if this year's production on an area of 38½ million acres only amounts to 10½ million bales, we have to attribute this poor result to the fact that the crop grew under the worst weather conditions imaginable. It was just as if all evil powers had united against the manufacturers: an unfavourable spring, an unfavourable June, a miserable August-September-October. July alone brought a bright beam of light, and on *this* the hopes of a crop of 12½ million bales were built. Suppose we shall enjoy normal weather conditions next year, why shouldn't we harvest 12½ million bales on 40 million acres. This would not as yet constitute a splendid achievement, in spite of the boll-weevil. Three years ago we had 13¼ million bales on 37 million acres, the weevil notwithstanding. A crop of 12½ to 13 million bales, it is true, might be considered a necessity, but not at a cost of from 30 to 35 cents. With such prices the world will continue to live from hand to mouth. The cotton industry *cannot* develop freely as long as cotton ranges 100 per cent., let alone 200 per cent., higher than before the war, while most other products of the soil have returned to the pre-war level of prices.

"Considering that the cost of textile products has risen enormously compared with most other commodities and that Lancashire's biggest customers are the poorer countries, there is no ground for surprise at England first feeling the pinch. Asia's industry is much less affected; it generally employs cheap raw materials and takes advantage of the short working hours to which Europe has liberally consented at the Washington Conference which, however, does not seem to be equally binding on the

East. Lancashire's struggle for its outlets has naturally been rendered more difficult by the increased production in Asia, as will be seen from the following statement. Indian cloth production amounted in

1900-10	1913-14	1921-22	1922-23
964,000,000 yds.	1,220,000,000 yds.	about 1,750,000,000 yds.	1,750,000,000 yds.

" Before the war India imported from Great Britain about 2,750 million yards of piece goods, and China about 500 million yards. During the last two years these imports have not exceeded 1,750 million yards in the case of India and 250 million yards for China. Moreover, the number of looms has considerably increased in the Far East. While Japan had but 21,000 in 1913, she now boasts of 61,000. In China 5,000 looms were working in 1913 against 15,000 to-day. In a like manner has the production of yarn increased in the two Far Eastern Empires, viz. in Japan from 1,135,000 bales in 1910 to 1,518,000 bales in 1913 and 2,228,000 bales in 1922, of which a large per centage is used up by hand looms. This relieves the East of the necessity of importing expensive foreign textile goods. In India, for instance, the coarse hand-woven Khadar cloth has become Gandhi's standard of agitation against the Anglo-Indian Government.

" The latest exhibition of Lancashire's plight consisted in its adherence to the 50 per cent. working hours after the failure in its attempt at compulsory rationing. However, since the last few weeks reports from Manchester have again become quite promising. What had so long remained abortive attempts by the Eastern Bazaars has materialized into actual business. During the last few days Manchester must have contracted sales to an extent not experienced for many months. We cannot, however, consider this to be the turning point in the fate of Lancashire's coarse spinning industry. The textile trade is, in the first instance, a speculative business. It is the wholesale merchant and not the man in the street who sends his orders to Manchester. Very often it is not the Eastern Bazaars that buy, nor the native wholesale merchant, but the far-sighted European exporter, just as the well-informed speculator in raw cotton makes his deal long before the mills think of striking their bargains. It is quite natural that, the expectation of a reduced crop estimate—from 11 to 10½ million bales—coupled with a rising rupee exchange, should have stimulated enterprise in textile manufactures. The rupee has risen within a few weeks from sh. 1/4 where it had remained after its soaring flight to 2/10 in January 1920, to 1/5 1/8, and India's trade balance has improved to such a degree as to make a further advance quite possible, although, with silver at 32d. this does not promise to be as passionate as it was some four to five years ago when the white metal jumped from 35 to 40d. To-day there is no shortage of silver. It is some time since the American Government stopped its purchase of the American output at \$1 per oz. The rising rupee exchange, as a result of the increased export demand, will call forth a growing import of the precious metal and this will act as a natural exchange regulator. But, as long as the rupee rises, it stimulates the purchase of English piece goods and at the same time enhances the export price of Indian cotton, for the rupee prices of Indian cotton are not immediately and automatically adjusted to its sterling value. Thus the recent rise in the rupee exchange may be responsible for 5 per cent. of the increase in the prices for the Indian growths. We cannot assume that the specula-

tive buying wave, consequent upon both the lower estimates of the American crop and the rise in the rupee exchange, answers an increased demand for consumption in India and China, for, there is no doubt that the cost of English textile goods has really risen beyond the poor Asiatic consumers' means. Lancashire's industry will have to try its luck by adapting some of its idle spindles to the spinning of finer counts which would, however, not further the consumption of raw cotton.

"The problem of supplementing the world's cotton supply from other sources than America to-day permits of a closer survey than a month ago. *Brasil*, it is true, sends ominous reports on the condition of its crop, but these we are not in a position to scrutinize. The *Egyptian* outlook seems to be more promising than it was five weeks ago and estimates below six million kantars have vanished from the scene. For *India* the official report mentions an increase in the acreage of 2 per cent. compared with last year. We shall know the final report in January–February, but we are already under the impression that, in spite of the belated monsoon, the area has grown by more than 2 per cent. In fact we should not be surprised to see an actual increase of more than 5 per cent.; the Southern tracts have done especially well. Cables from India complain of lack of rain in Kathiawar, Guzerat, Broach and the Western and Northern districts of Madras. In Comptah-Dharwar rains would equally be very welcome, but it would be expecting too much of the advanced season to have all these wishes fulfilled. The Indian crop, at this time of the year, has generally to pull along with 'the season in the ground' and the nightly dews. At the present juncture rains would be decidedly harmful to much more important tracts than those reported to be in want of moisture. The forthcoming estimates of the Indian crop will probably be framed under the impression that many districts have suffered from drought. The fact, however, exists that the extensive hinterland of Karachi, as well as the Omra belt, the mainstay of the Indian crop, are both doing quite well and we should be disappointed if the crop in the end would not reach six million bales. In any case, six million bales, although exceeding present guesses of local experts, would be a pressing necessity for the world's wants. Europe has taken 1,300,000 bales from India during last season. Considering conditions in America, Europe would, with the present parity of prices, only too gladly absorb one-and-a-half million bales—as compared with two million bales in 1913–14 and a yearly pre-war average of one-and-a-quarter million bales—provided India can spare as much for Europe. The normal requirements of Indian cotton, with a normal supply from America, are to-day about as follows:

2,250,000	bales for Indian mills
750,000	" " Indian domestic consumption
2,500,000	" " Japan and China (in the light of last year's purchases)
1,000,000	" " Europe
<hr/>	
6,500,000	bales

"Last season the figures amounted to about :

1,900,000	bales for Indian mills
750,000	" " domestic consumption
2,800,000	" " Japan and China
1,300,000	" " Europe
<hr/>	
6,250,000	bales

" This year the main problem will be *Japan's and China's requirements* of Indian cotton. The news about the Chinese crop is as favourable as it was last year, and yet, all of a sudden, an impetuous bullish wave seized the Chinese exchanges in the early days of this month, very similar to the events of last December. Shanghai speculators, to all appearances, had not counted upon the inland mills entirely absorbing the first arrivals, and the absence of any pressure of arrivals sufficed to drive up prices rapidly by 2d. And yet Chinese cotton remains cheaper than foreign imports. A selling price of 13½d. c.i.f. Europe for China cotton equals about 12d. free delivered Shanghai mill, and foreign imports are yet burdened with the Chinese import duty.

The price of Chinese *yarn* has lately improved, but it continues to be unremunerative to spinners who failed to buy cheap cotton forward. The same is the case in Japan where yarn slowly rose by about 10 per cent. to Yen 260 - while the cost of the raw material advanced by more than 20 per cent. The encouraging news from the cotton producing centres and from Manchester cannot fail to have a salutary effect on the Far Eastern trade, but it will scarcely counterbalance the disorganization of commerce in Japan. It is impossible to foretell when trade will once more enjoy normal conditions on the earthquake-stricken island. We take it for granted that Japan's power to absorb cotton will be partly fettered for some time yet. The price of yarn in Osaka should now stand at about Yen 275—without leaving any profit to the mills, and this is a hard nut for a people that is, at present, largely dependent on foreign assistance. The Indian consumption, both industrial and domestic, may be put down at two-and-a-half million bales and if Japan and China content themselves with two million bales there would just be one-and-a-half million bales left for Europe, i.e. 500,000 bales more than two and three years ago.

" The Indian crop has not yet matured on unirrigated fields and arrivals have only just commenced north of Karachi. The Omra crop will not start playing before the middle of November and in the meanwhile the exporters' commitments are growing daily so much so that we are afraid the arrivals of November, December and January will be wholly taken up by the requirements of the Indian mills, and of Japan and Europe during that period. For this reason we should not expect prices for Indian cotton to ease off as long as America remains firm. The margin between American and Indian prices may widen once the arrivals in the United States start falling off, if those in India simultaneously exceed the demand, a coincidence which does not appear to be in store before January-February.

" In our last year's reports we never tried to point out that the Indian opening reserves of the season would be reduced to a similar ebb as those in America and we have not been deceived. The stocks of old crop cotton are nearly exhausted and consist of nothing but inferior grades. Tinnevelly and Cambodia which furnished good qualities these last few months are dwindling rapidly with the result that the first arrivals into Karachi are being hotly contested. The same thing is likely to happen, perhaps to a more acute degree, with new Omras, of which Europe seems to be entirely despoiled. We expect high prices for the first arrivals of new crop and very high prices for Indian staple descriptions which seem destined to stretch the mills' reserves of American cotton. The position of the Indian market promises to be not only extremely complicated, but very risky too for anyone who is not an expert in this growth, for, while a

Bengal measuring 18 mm. values 10d., a 20 mm. Omra is worth 12d., a Surti-Broach with 24 mm. staple is actually paid 15d. and an American seed of 25 mm. cannot be bought at less than 16d. Thus every millimeter more or less literally corresponds to a 1d. a lb. This fact contains, of course, a strong inducement to increase the spinning of low counts which is likely to expand in Europe and which, on the other hand, absorbs much more raw cotton than the spinning of high counts would.

In our Report No. 34 of 30th November we endeavoured to outline the cotton industry's position in the eventuality of an American crop of but 9½ million bales exclusive of linters. We doubt whether any close observer can find much fault without conclusions. We pointed out that the textile industry had so far worked at the same speed as the year before, in careless disregard of the fact that it had to economize its resources of American cotton, which are about 2½ million bales short of the previous year's supply. The natural and simple inference was this, that we would reach a level of prices sufficiently high to *enforce* the required economy.

Meanwhile America has become the scene of interesting events. The crop-killers' estimates, such as the National Ginners' of 9,320,000 bales, have driven outsiders into wild speculations. With a crop of half a million bales less than last year, *any* price seem plausible. But as soon as private estimates in the neighbourhood of 9½ million bales appeared on the field, and the same National Ginners hinted at the likelihood of a fair Ginners' report per 1st December, the super-bull's dupes took alarm, and heavy liquidations set in, with the result that prices dropped from 36½ cents to 35 cents within a few days. The publication of the official ginning figure of 9,244,000 bales dealt the final blow: the extreme bulls veered and their former supporters found themselves attacked in the rear with an increased estimate of 10 million bales, which resulted in a regular stampede. "*La baisse amène la baisse.*" The first to liquidate were the paper speculators. When these began to sell out, their contracts were mostly absorbed by the American industry. But once the liquidations assumed drastic figures, even the more enterprising spinners lost their courage, and May New York declined to 33 cents from 37 cents 12 days ago!

One might be inclined to think that the spinning industry would have hailed such a windfall. To all appearances this is not the case. Had the spinners really availed themselves on a large scale of such a favourable opportunity, prices would not have fallen to this level.

After all—what has happened? Some sensational crop-killers have been disavowed, and those that allowed themselves to be guided by them have been fleeced. What *expert* would have believed their estimates? Our last market arguments were still based on a yield of 9½ million bales. Even if we suppose that the Bureau estimate would turn out 10 million bales, the picture would be exactly the one drawn in our Report No. 34, i.e., *at the present rate of consumption the world's spindles lack 2½ million bales or the raw material required for feeding the mills during 2½ months, and the present rate of consumption is not likely to be unfavourably affected by an easing of the price from 37 to 33 cents!*

There is no getting around this solid fact. Any manufacturer who profits by the favourable opportunity to secure the balance of his requirements for the season naturally does so to the detriment of those that lack either pluck or agility. For, the events of the last 10 days have

in no manner relieved the industry's position ; they have but upset the calculations of certain speculators with which the manufacturer has no concern.

We heartily welcome the favourable juncture that enables spinners to purchase at this moment American cotton cheaper than appeared possible under the Bull Clique's sway, just as we hail the sorely-needed sobering down of the Bombay market. Now that the prices are lower the East India Cotton Association has condescended to remove the maximum prices and trading restrictions imposed on 29th November.

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## Obituary Notice.

### FRITZ JENNY-DÜRST.

We regret to inform the members of the death of Mr. Fritz Jenny-Dürst, of Ziegelbrücke, Switzerland, which took place, in his sixty-eighth year, on November 7, after a short but severe illness.

Mr. Fritz Jenny-Dürst's sterling qualities of character, his geniality, and his intimate knowledge of cotton spinning and weaving made him at all times a very welcome delegate to the many International Cotton Congresses which he attended. He took a keen interest in the affairs of the International Cotton Federation, and his counsel was much appreciated. On one occasion Mr. Jenny represented Switzerland as substitute at an International Cotton Committee meeting in London, when he had the honour of being presented to the late King Edward VII.

Mr. Jenny knew how to travel. With painstaking energy he prepared every one of his journeys abroad, and once he arrived at his destination he carefully put on paper every day his impressions—what he had seen and heard.

Many members of the International Federation in all parts of the world had become his friends, and they will deeply regret the loss which the cotton industry has suffered through the passing into the Great Beyond of Mr. Fritz Jenny-Dürst.

Cordial sympathy is expressed to the members of the family in their great bereavement.

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## REVIEWS.

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“ANNUAL COTTON HANDBOOK.” The fifty-third edition of this book was issued in October, 1923, by the Comtelburo, Ltd., 11, Tokenhouse Yard, London. The new edition is like its predecessors a most useful book of reference for all those engaged in cotton. The reviewer wishes to state that hardly a day passes where he has not recourse to the pages of this all-embracing statistical compilation on cotton.

“THE BASIS OF EGYPTIAN AGRICULTURE AND ITS RELATION TO THE DECLINE IN THE AVERAGE YIELD PER FEDDAN OF COTTON,” by E. McKenzie Taylor and A. Chamley Burns, is a publication of the Ministry of Egypt (*Bulletin 25*) in which the authors arrive, amongst others, at the following conclusions :

"The fertilizing properties of Nile silt appear to have been considerably exaggerated. The similarity in composition of Nile silt and the soil, the proved absence of readily nitrifiable matter, and the lack of response of the cotton crop to fertilizers in general, support this conclusion. It appears, therefore, that the deposition of Nile silt upon the land was probably not the main factor concerned in the maintenance of the fertility of Egyptian soils.

"The basis of Egyptian agriculture under the basin system of irrigation was the *shardqi* period (*sharāqi* equals land which receives no water during May, June and part of July), to which cause the authors have attributed the maintenance of the fertility of the soil.

"The fact that *protozoa* (there is normally present in the soil a factor of biological character which tends to limit crop production and this has been provisionally identified as the soil protozoa) are introduced into the soil by irrigation, and that suitable conditions for their development are induced in poorly drained soils, suggests that the protozoa are the limiting factor in crop production. The analogy between 'sewage sickness' and the soil conditions in Gharbiya and Daqahliya has led the authors to define the condition of the soil resulting from perennial irrigation as 'irrigation sickness.'

"The intensification of the *shâraqi* effect, by means of ploughing during the summer period, is suggested as a means of completely suppressing the protozoa in the soil and restoring to it its crop-producing power."

"INBREEDING IN COTTON AND ITS IMPORTANCE TO THE PLANT BREEDER." A reprint has been issued from the *Agricultural Journal of India* of an article by S. C. Harland, D.Sc. (London), F.L.S., late Imperial Department of Agriculture for the West Indies. It is too technical to be dealt with in these columns, but those actively engaged in plant breeding should obtain a copy of this pamphlet from Thacker, Spink & Co., Calcutta.

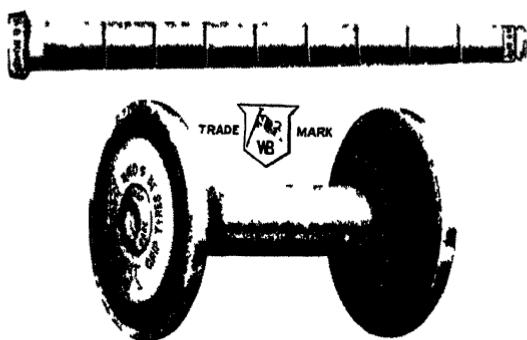
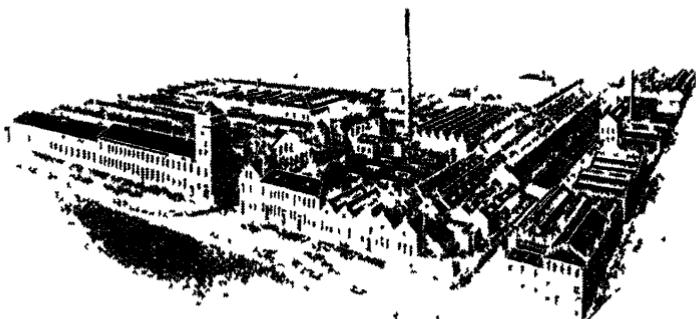
"INDIAN COTTON FACTS, 1923." The Cotton Department of Toyo Menka Kaisha, Ltd., Bombay, has issued a small book of 175 pages of all kinds of statistics relating to Indian cotton. The book will be found a most valuable volume of reference by all engaged in this particular cotton. Besides acreage, exports, production, yield, shipments, details are also given as to yarn and cloth produced in Indian cotton mills, imports, and a special chapter deals with the Indian cotton mill industry.

"LE COTON AU BRÉSIL, SA PRODUCTION, L'ÉTAT ACTUEL DE SA CULTURE—SON AVENIR," is an interesting article by V. Cayla in the September issue of the *L'Agronomie Coloniale*, the journal of the French Institute of Colonial Agronomy (Ministère de Colonies), in which the author confirms the views expressed in *Brazilian Cotton* and *Cotton in North Brazil*.



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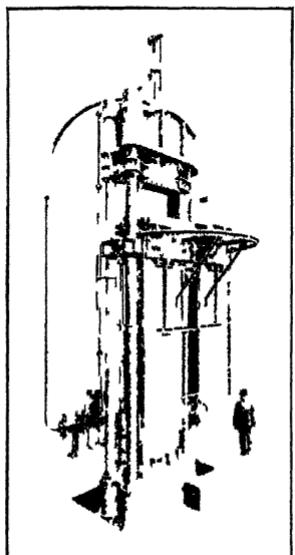
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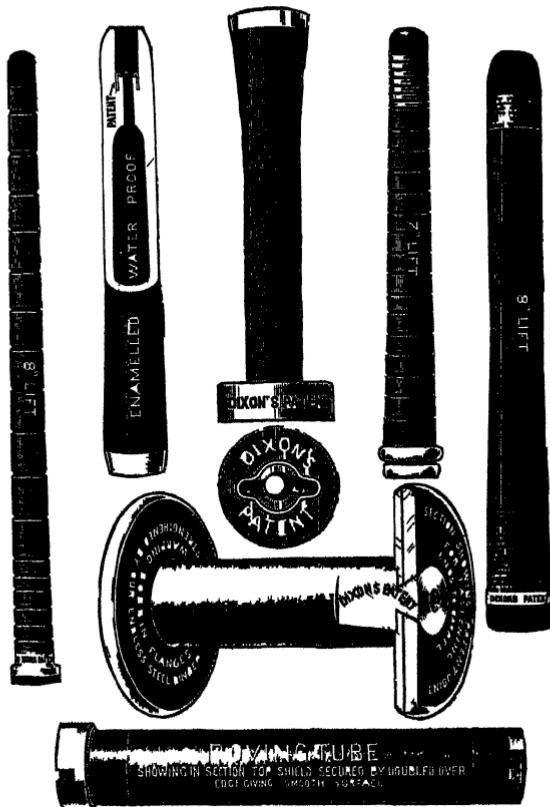
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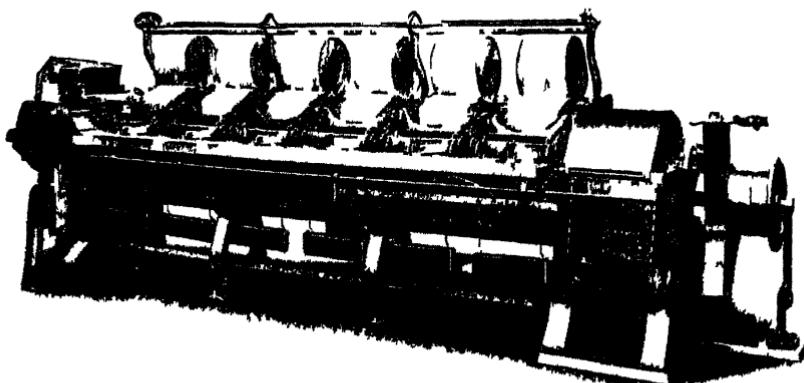
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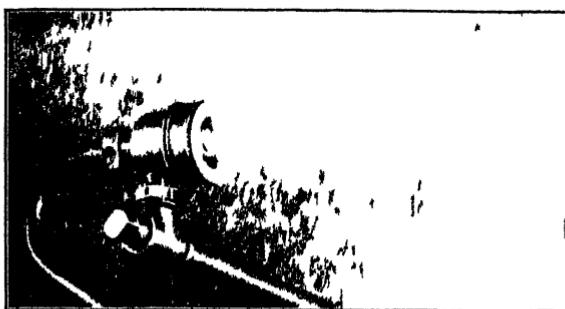


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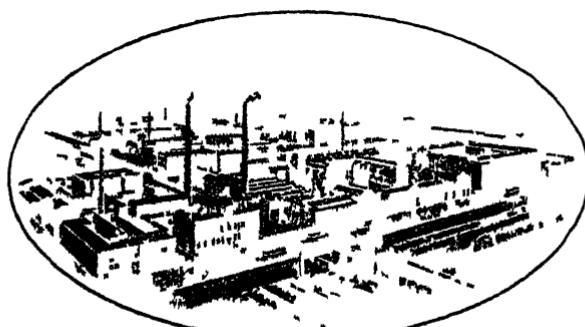
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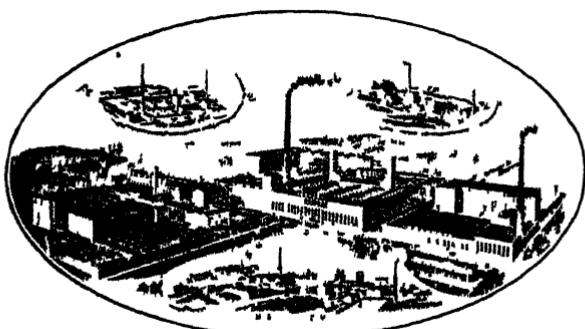
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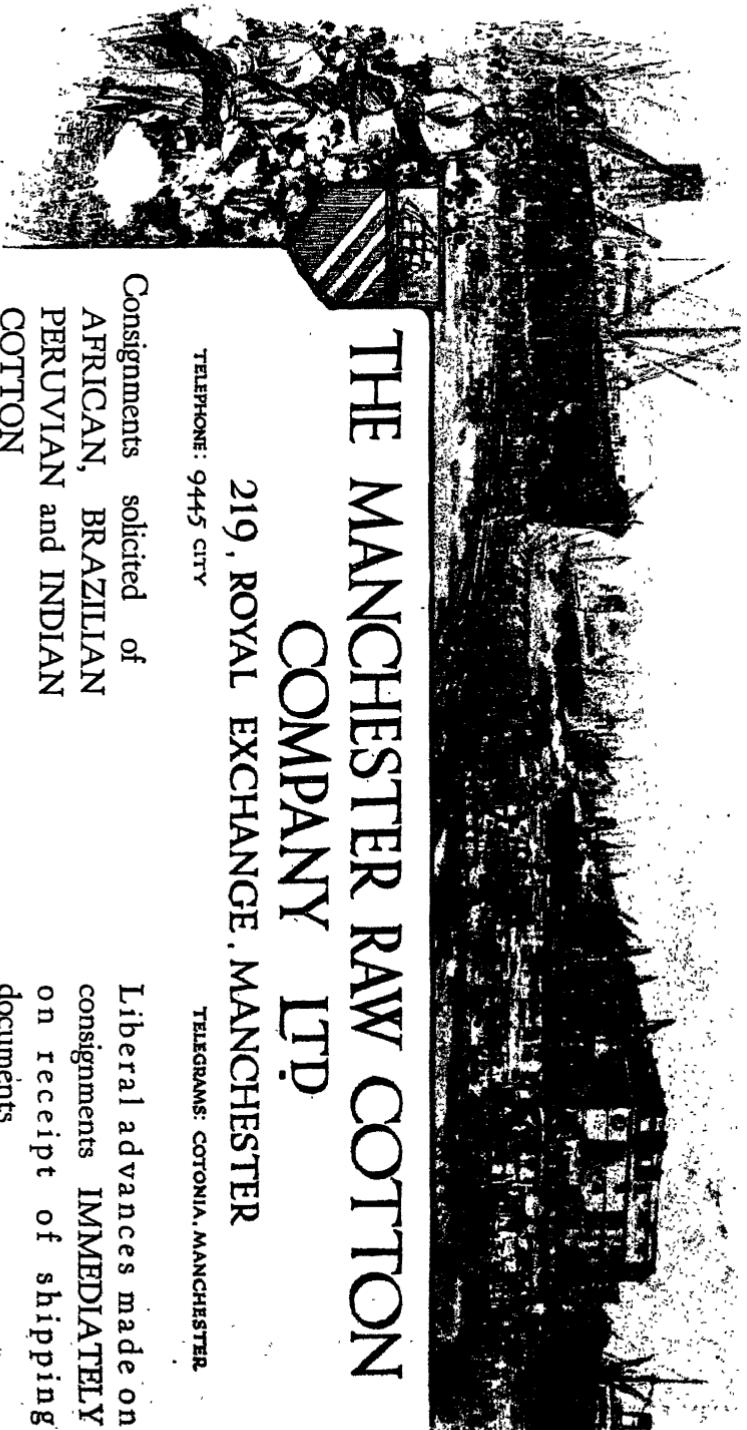
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# INTERNATIONAL COTTON BULLETIN

No. 7

March, 1924

*Published by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester. Edited by Arno S. Pearse, General Secretary, Manchester. The Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations wish to point out that they do not hold themselves responsible for the statements made or the opinions expressed by individuals in this Bulletin.*

## Items of Special Interest in this Number:—

THE BOLL-WEEVIL PROBLEM IN U.S.A. (*concluded*).

MILL CONSUMPTION AND STOCK STATISTICS.

THE HAVRE MARKET.

COTTON GROWING IN PERU.

COTTON GROWING IN FRENCH WEST AFRICA.

STATE OF TRADE REPORTS.

## Provisional Programme of the Twelfth International Cotton Congress, to be held at Vienna, June 12, 13, 14, 1924.

### FIRST DAY'S PROCEEDINGS.

THURSDAY, 12TH JUNE, 1924:

Chairman of the Morning Session, Mr. ARTHUR KUFFLER (Austria),  
President of the Congress.

9-30 a.m. ADDRESS by the President of the Congress, Mr. ARTHUR KUFFLER.

ADDRESS by Mr. JOHN SYZ, President of the International Cotton Federation, on the activities of the organization since the Stockholm Congress, 1922.

CHANGE OF RULES 19 AND 13 OF THE STATUTES, as proposed by the Committee.

Rule 19 reads at present :

**" EXPENSES OF MEMBERS OF THE COMMITTEE.**

" The Members of the Committee of Management, when attending meetings of the Committee, shall be allowed first-class fares and 40 francs per day for out-of-pocket expenses."

It is proposed that this rule be modified as follows :

" The Members of the Committee of Management, when attending meetings of the Committee, are not entitled to payment of travelling or out-of-pocket expenses from the funds of the International Federation. Such expenses are to be borne by the Associations they represent or by the Members of the Committee themselves. In case where the Committee appoints a member to undertake special work which necessitates a journey, his out-of-pocket expenses will be defrayed from the funds of the International Federation."

This change necessitates the elimination in Rule 13 of the words : "*but in the latter case his expenses will not be paid by the International Federation,*" which would then read :

" Rule 13.—Each country shall have the right to appoint a substitute to attend the meetings of the Committee in the event of its representative being unable to attend. This substitute, in order to become conversant with the work of the Committee, may accompany the duly appointed representative to any meetings of the Committee, if the Associations in his country so desire. Such substitute has no power to vote, nor is it expected that he will take part in discussions at the meetings."

**FINANCIAL STATEMENT. COMTE JEAN DE HEMPTINNE (Belgium).**

**INTERNATIONAL COURTS OF ARBITRATION. MR. JOHN TAYLOR,** solicitor of the International Federation, on behalf of the Special Arbitration Sub-Committee.

**AMERICAN COTTON CROP REPORTING MISSION.**

*(Review of the 1923 journey and decision to be arrived at whether this work has to be taken up every year.)*

### AFTERNOON SESSION

**2-45 p.m. Chairman : Dr. ARNOST ZUCKER (Czecho-Slovakia).**

**EFFECT OF 48-HOUR WEEK ON THE COTTON INDUSTRY.**

**MODERN DRAFTING SYSTEMS IN COTTON SPINNING MILLS.**

**LABOUR-SAVING APPLIANCES IN COTTON MILLS.**

## SECOND DAY'S PROCEEDINGS.

FRIDAY, 13TH JUNE, 1924:

Chairman : Mr FREDERICK HOLROYD (England).

9-30 a.m. Minutes of the previous day's sittings

COTTON GROWING IN BRAZIL.

COTTON GROWING IN THE COLONIES AND DEPENDENCIES  
OF THE AFFILIATED NATIONS.

## AFTERNOON SESSION.

2-45 p.m. Chairman : Mr. G. MYLIUS (Italy).

DAMP IN RAW COTTON.

ADDRESS BY THE REPRESENTATIVES OF THE AMERICAN  
COTTON GROWERS' CO-OPERATIVE MOVEMENT.

AMERICAN COTTON CONDITIONING REPORTS.

## THIRD DAY'S PROCEEDINGS.

SATURDAY, 14TH JUNE, 1924:

Chairman : Mr. J. H. HERM. BÜHLER (Switzerland).

10 a.m. Minutes of the previous day's sittings.

Resolutions on subjects dealt with at the Congress.

Levy for 1925 and 1926.

Place of next Congress.

Votes of thanks.



# The Boll-Weevil Problem in the U.S.A.

(Continued from page 168 No. 6 BULLETIN.)

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## Report of the Cotton Crop Reporting Mission of the International Cotton Federation.

### INDIRECT MEANS OF CONTROL

In addition to the use of poison there are numerous other practices which tend to reduce the weevil injury, some of which are of general value, while others can be used only locally. The following pages describe a few of the more important of these measures. Even when poisoning is practised the most thorough attention should be given to the indirect means of control, since they reduce the amount of poisoning which might be necessary and increase the profit which may be secured.

**AUTUMN DESTRUCTION OF INFESTED PLANTS.**—One of the most important steps toward reducing the weevil infestation, when it can be practiced, is the destruction of the cotton plants in the early autumn, before the weevils have hibernated. To be of the greatest value, however, the plants must be completely destroyed by fire or ploughed under deeply before the first killing frost, and this limits the use of this control measure to the districts where conditions are such that the entire cotton crop can be picked in time to permit such an early plant destruction.

For many years preceding the development of the calcium-arsenate method of control, removal of the cotton plants from the field as early as practicable in the fall was advocated by the Department of Agriculture as the most important step in controlling the weevil. The purpose of this operation is to destroy as many as possible of the immature forms of the weevil still remaining in bolls and squares. These immature forms, if undisturbed, transform into weevils which live over winter and lay eggs the following spring. Autumn destruction of plants likewise eliminates hibernating places of the weevil in the field.

**GRAZING.**—In some districts where it is impossible to practise autumn destruction of the plants, somewhat the same results can be accomplished by grazing the field with cattle, sheep, or goats. This is only a local measure, however, since the supply of live stock in regions where the bulk of the cotton crop is produced is insufficient for the purpose. Even where poisoning is practised autumn grazing is still advisable, and no danger need be apprehended of poisoning the stock, since there is rarely sufficient poison on the plants to injure stock, even immediately after application, and, furthermore, a considerable period of time generally elapses between the last poison application of the season and the earliest grazing.

**SPROUT AND VOLUNTEER COTTON.**—Considerable local difficulty in the control of the boll-weevil is experienced in Southern Texas and occasionally in Louisiana, owing to the presence of stumpage or sprout cotton i.e., cotton left in the ground for the second year. Sprout plants are sometimes encouraged because they produce a small but very early crop. This may have been defensible before the advent of the boll-weevil, but at present the practice is undoubtedly the worst that could

possibly be followed. The weevils seek out these large plants in the early spring and produce progeny much earlier than they otherwise could, and these progeny infest the planted cotton at an abnormally early date. Volunteer cotton causes the same results over a considerable portion of the cotton belt. The cotton seed scattered about seed houses and gins and along roadsides frequently produces plants which furnish early-season breeding places for the weevil. Needless to say, all such plants should be destroyed.

**DESTRUCTION OF WEEVILS IN HIBERNATION.**—It is often possible for the farmer to reduce considerably his spring weevil infestation by proper winter clean-up measures around his fields. The weevils will hibernate successfully in any trash or rubbish, and it is a very good practice to burn over or clean up any such situations around the cotton field during the winter, especially the fence rows and ditch banks.

In addition much can be accomplished by the elimination of hibernation quarters. Especially along the more northerly portions of the weevil zone, the most successful hibernation is largely confined to the timbered areas, and as a result serious weevil injury is only experienced in the fields adjoining such timber. Under such conditions it is of the utmost importance to plan all clearing operations so that the open areas for cultivation are consolidated into as large tracts as possible, thus increasing the amount of land which is sufficiently distant from timber to suffer a minimum amount of weevil injury.

**LOCATING FIELDS TO AVOID WEEVIL DAMAGE.**—Nearly every farmer who has been raising cotton for a few years in the presence of the boll-weevil knows that there are certain fields on his place where the weevils always appear first and in greatest numbers. With this information as a basis, it is sometimes possible to reduce the damage by refraining from planting cotton in such fields and planting the more distant fields. This practice, however, is advisable only when no attempt is made to control the weevil by poisoning. These fields adjoining timber where the weevil infestation is heaviest are usually the new lands of the place and are thus the most fertile and capable of producing the best cotton crop if the weevil injury is eliminated. Furthermore, when such fields adjoin hibernation quarters, the weevils concentrate on them instead of scattering over larger areas and they serve to a certain extent as trap crops, making it possible to poison the weevils on these fields and thus prevent their spread over the remainder of the crop.

**PROCURING AN EARLY CROP OF COTTON.**—The foregoing facts relative to the life history, hibernation, emergence, and multiplication of the weevil show very plainly the importance of producing the cotton crop just as early in the season as possible. In reality the production of cotton in the presence of weevils is nothing more or less than a race between the setting of bolls on the plant and the multiplication of the weevils, and everything possible should be done to aid the cotton plants in winning this race. The following are some of the more important steps which may be taken.

**EARLY REMOVAL OF PLANTS AND PREPARATION OF LAND.**—The first step in procuring an early crop is the early removal of the plants, so that the land may be ploughed during the autumn and winter and the seed bed thoroughly prepared. The importance of a well-prepared, solid seed bed can hardly be overestimated. Furthermore, unfavourable weather conditions shortly before planting often prevent ploughing at that time, and early preparation does away with this risk.

USE OF EARLY VARIETIES OF COTTON.—One of the most important steps which have to be taken to reduce the weevil damage has been the development and introduction of varieties of cotton which mature their crops earlier in the season than those varieties which were planted before the weevil invasion. The variety to be planted in order to obtain a profitable crop under weevil conditions will depend upon a number of factors as well as on the severity of the infestation. The soil, climate, and other factors must be considered. In many localities it is extremely important to select varieties which are resistant to diseases. The first effect of the boll-weevil invasion was to force the abandonment of the longer staple and large-boll varieties of cotton and the adoption of small-boll, early varieties of very short staple, such as King and its derivative, Simpkins. During recent years, however, numerous other varieties have been developed to the point where they are sufficiently early to mature a crop in the presence of the weevil, and these are being rapidly adopted. The Triumph variety is one of the best known for the western portion of the infested territory. Among the others which have been cultivated with success in various localities are Cleveland Big Boll, Cook's Improved, Rowden, Toole, Brown, Lone Star, Trice, and Columbia.

The long-staple cotton situation is particularly interesting. The Upland long-staples, which were cultivated when the weevil arrived, were slow-maturing, non-prolific varieties with a very thin boll wall, and were thus subject to a maximum amount of weevil damage. The weevil soon eliminated practically every one of these varieties, and for some time it appeared that the production of long-staple cotton would be practically prohibited. This situation, however, has been met by the development of several long-staple varieties which are prolific and reasonably early. Among the best known of these are such varieties as Express and Webber.

EARLY PLANTING.—Another step to be taken in obtaining an early crop, and fully as important as those that have been mentioned, is early planting. No set rule can be laid down as to the proper date for planting. There is much variation in the seasons. Sometimes it is impossible to place the fields in readiness as early as is desirable, and much of the effect of early planting is lost unless the seed bed is in good condition. Rather than plant abnormally early it would be better to improve the seed bed. It is not recommended that planting be done at dangerously early dates. Nevertheless, with proper preliminary attention to the fields it would be possible for farmers in most localities to plant from 10 to 20 days earlier than they were accustomed to before the arrival of the weevil. It is much better to run the risk of replanting, provided the seed bed is in good condition, than to defer planting on account of the danger of cold weather. Of course, it is possible to plant entirely too early, so that the plants become stunted during the early days of their growth, and planting should not be done so early as to have this effect upon the plants.

FERTILIZERS.—An important step in procuring an early crop is the use of commercial fertilizers. In many large areas in the cotton belt the land is not impoverished to the extent that it actually needs fertilizers under normal conditions, but it has been demonstrated many times by the different experiment stations in the South that the maturity of cotton frequently can be hastened materially by the use of fertilizers. On

impoverished soils, moreover, fertilizers containing a high percentage of nitrogen give increased yields under boll-weevil conditions.

The proper use of fertilizers is a very complicated matter. In fact, in the light of all present knowledge only the most general rules can be laid down. Each farmer must experiment with the soils upon his place and study the results to obtain the greatest benefit from fertilizers at the smallest cost. In the eastern portion of the cotton belt most of the farmers have acquired this experience. In the West, however, this training is lacking.

By far the best method of building up soils so that early crops of cotton may be produced is the use of legumes planted either with corn or solid. In the alluvial soils of the Mississippi Valley remarkable results in obtaining increased yields under boll-weevil conditions have followed the growth of cowpeas for a single season.

The relation of fertilizers to the determinate growth of the cotton plant should be carefully considered. With certain varieties and certain soils the plants have a decided tendency to cease squaring about the middle or latter part of the season and to mature at that time. This habit has been called the "determinate growth" of the plant. According to the time it occurs, this may be an advantage or disadvantage in the fight against the weevil. If it occurs too early it is a decided disadvantage, because this cessation of squaring produces a food shortage, which causes the weevils to attack the bolls with abnormal severity. Consequently, it is very desirable to have the cotton continue squaring long enough to protect the full crop of bolls to maturity. After the bolls are safe, however, the squares are a liability rather than an asset, since a large number of weevils are produced from them and enter hibernation well prepared for survival. In utilizing fertilizers the farmer should plan to supply his weevils with an abundance of food until his crop of bolls has matured beyond the point of injury and then the sooner his cotton stops squaring the lighter his infestation will be the following season.

**SECURING A FULL STAND OF COTTON.**—Many theories have been advanced regarding the spacing of cotton and its relation to boll-weevil control. The most profitable spacing varies with the season, soil, variety, and numerous other conditions, but it is generally found that the spacing which secured the best results prior to the arrival of the weevil is still best in the presence of the weevil. The general practice, however, has been exceedingly careless and as a rule very poor stands are secured.

**CULTIVATION.**—During the growing season of the crop the fields should be very carefully cultivated, otherwise most of the benefits of early preparation, early planting, and fertilization may be lost. In case planting is unavoidably delayed the best course to pursue is to cultivate the fields in the most thorough manner possible. Under most conditions the old plantation rule "once a week and one in a row" should be applied. This will not result in the direct destruction of many weevils, but it causes the plants to continue uninterruptedly in their growth. By all means such operations as deep cultivation and cultivation close to the plants, which cause shedding, should be avoided. In many instances a fair crop already set and beyond danger from the weevil has been lost by running the ploughs so close that the side roots were cut and the plants made to shed practically all the fruit. When this happens during the middle or latter part of the season the weevils will certainly prevent the putting on of any more fruit. The general practice of "laying by,"

by scraping the middles with a wide sweep, leaves a hard surface which causes loss of moisture and shedding. Where the weevil occurs, every precaution must be taken to avoid shedding, as the insect will prevent the maturity of the later fruit and, moreover, will be forced to attack bolls which otherwise would not be injured.

The value of the late cultivation has often been discussed. Prior to the advent of the weevil it was an almost universal custom to "lay by" the cotton crops well before the time when the last bolls were set. This practice has been very largely abandoned, however, owing to dire necessity. The importance of keeping the cotton squaring long enough to protect the bolls until safe from injury has been mentioned, and the best way to accomplish this result is to continue cultivation until fairly late in the season, at least two or three weeks beyond the usual time of "laying by." This is, of course, a somewhat dangerous practice, since it is a critical period in the bolling of the cotton plant, and it is very easy to bring on absolute disaster to the crop by improper cultivation at this time. Consequently, all carelessness at this season should be avoided and the plough should not be run too deeply or too close to the plant, or excessive shedding will result. Careful late shallow cultivation is to be very strongly recommended.

**DRAINAGE.**—The foregoing paragraphs have dealt largely with the necessity of an early crop and have emphasized the importance of expediting the crop by early preparation of the seed bed, early planting, and frequent cultivation. These operations, however, can only be successfully conducted under conditions of good drainage. It is practically impossible to raise a profitable crop of cotton on poorly drained land. On the other hand, the value of good drainage is everywhere apparent. It makes possible the earlier planting of cotton, early germination, and rapid, frequent cultivation. Furthermore, the ground dries out more rapidly after a rain, which increases the control of the weevil by sunshine.

#### INEFFECTIVE METHODS OF CONTROL

The extreme seriousness of the boll-weevil problem has called forth hundreds of suggestions in control. These have included changes in manner of planting, attracting the insects to food plants or lights, soaking the seeds to make the plants distasteful, sprays, machines, chemical fumes, and the planting of various plants supposed to be repellent. In many cases these suggestions have been made without due understanding of the habits of the weevil. In other cases practical features, such as the cost of application, have not been considered.

**LATE PLANTING.**—Late planting is foremost among the futile means of control. At various times it has been suggested that late planting, especially if following early autumn destruction, would so lengthen the hibernating period that no weevils would survive. Very numerous experiments in the field and in cages have proved that the weevils in considerable numbers are able to survive from any reasonable time of early destruction in the autumn to beyond the date in the spring when any return whatever could be expected from planting cotton, even if the weevils were entirely eliminated. In a field experiment in Kerr County, Tex., the plants were removed very thoroughly early in November. Neither stumpage nor volunteer plants were allowed to grow during the winter. No other cotton was planted within nine miles. On the

experimental field, planting was deferred until June 10. In spite of this fact weevils appeared as soon as the plants were up and multiplied so rapidly that the production was not sufficient to warrant picking. Similar experiments under different conditions by the State Crop Pest Commission of Louisiana\* agree in every way with those of the Bureau of Entomology in Texas.

**WEEVIL AND SQUARE COLLECTION.**—The possibility of weevil control by hand picking of the adult in the early spring and of the infested squares later in the season has been thoroughly tested on numerous occasions. Undoubtedly this method is efficient when practiced with sufficient thoroughness, but numerous attempts to carry it out on a practical scale have shown that the labour difficulties are almost always prohibitive. This work is of value only comparatively early in the season and thus falls at the same period when there is a very heavy demand for the labour for other purposes, and it is generally impossible to collect the weevils or infested squares without neglecting other more important work. Consequently this procedure can only be recommended under rare conditions, when the infestation is not excessively heavy and when an abundance of cheap labour is available.

Many attempts have been made to collect the weevils by means of mechanical devices. Hundreds of such devices have been tested and all are to be condemned. They do not collect an appreciable number of weevils unless they are so violent in the agitation of the cotton plant that they are actually injurious to it.

**TRAP ROWS.**—The idea of attracting weevils to a few early plants or trap rows has frequently been advanced. Practical experience, however, has shown that the only possibility of success in such a procedure lies in the use of entire fields adjoining hibernation quarters. The use of only a few rows as a trap crop has been found to be absolutely valueless.

**ATTRACTION TO LIGHTS.**—Many insects more or less resembling the boll-weevil are attracted to lights. Many attempts have been made to destroy the cotton pest by taking advantage of this supposed habit. The boll-weevil, however, is not attracted to lights. Numerous tests have been made in which many thousands of other insects were collected around strong lights in cotton fields, but not a single boll-weevil was found, in spite of the fact that there were multitudes of these pests in the fields surrounding the lights.

**CHEMICAL TREATMENT OF SEED.**—Any money expended by the farmers in attempting to destroy the boll-weevil by soaking the planting seed in chemicals in the hope of making the plants that are to grow from them distasteful or poisonous to the insects would be entirely wasted. The same remark applies to the various proposed treatments of the plants or soil with chemicals which are supposed to be taken up by the plants to the detriment of the weevils feeding upon them.

**TOPPING OF PLANTS.**—The topping of plants is sometimes recommended for fields infested with boll-weevils. This practice generally results in more harm than good, since it removes a portion of the plants upon which the weevil is most dependent for food during the latter part of the season, and furthermore practically always produces an exceedingly dense foliage growth which greatly reduces the sun control of the weevil stages and promotes such dangerous diseases as boll-rot.

\* Described in Bulletin 92 of the Louisiana Agricultural Experiment Station, published in 1907.

SWEETENED POISONS.—Many attempts have been made to make poisoned substances attractive to the weevils by introducing sweets and other ingredients. Some known sweets, such as honey, have a slight attraction for the weevil, but not enough to assist in practical control. Numerous tests of such sweetened mixtures have been made and it has always been found that, though they may have a slight value, results are far inferior to those which can be obtained by applying dry calcium arsenate under the same conditions.

CONTACT POISONS.—Poisons designed to kill the boll-weevil by suffocating them have been proposed. They cannot, of course, be effective against the immature weevils within the cotton fruit. Normally, also, the adult weevils are found inside the bracts of squares, where they cannot be reached by sprays. Numerous chemicals have been found which, if placed directly on the weevil, will cause immediate death, but this does not mean that these chemicals are of the slightest value when applied in the field. In the first place, they are nearly always exceedingly injurious to the cotton plant, and furthermore, when applied to the plant under field conditions, do not come in contact with the weevils sufficiently to kill any appreciable number. In spite of the numerous chemicals tested, not a single contact poison has been found to have any practical value in field use against the weevil.

REPELLENTS.—In the same way it has been claimed that numerous chemicals, fumigants, etc., have a repellent value against the boll-weevil. Almost every conceivable compound has been tested for this action and not a single one has been found which had the slightest repellent action against the weevil.

OTHER PROPOSED REMEDIES.—Many other remedies have been suggested for the weevil. Literally hundreds of these have been carefully investigated, and it has been found that the claims of their advocates were based on faulty observations or careless experiments. It is true that many of them when placed directly on the weevil will cause immediate death, but they are still found valueless when used in the field. The claims made at different times of the repellent power of tobacco, castor-bean plants, and pepper plants against the boll-weevil have no foundation whatever. In fact, none of these plants has the least effect in keeping weevils away from cotton.

#### EFFECT OF METHODS OF CONTROL OF THE BOLL-WEEVIL. ON THE CONTROL OF OTHER INSECTS

THE COTTON BOLL-WORM.—The most important enemy of cotton in the United States, aside from the recently introduced pink boll-worm (*Pectinophora gossypiella* Saund) and the boll-weevil, is the boll-worm (*Heliothis obsoleta* Fab.), which has existed there for many years and frequently reduces the crop very considerably. Its annual damage to cotton in the United States has been conservatively estimated at more than \$8,000,000. This insect is also a very important enemy of corn, tomato, okra, cowpeas, and some other crops. Careful studies of the boll-worm were conducted by Dr. A. L. Quaintance, of the Bureau of Entomology, in connection with large-scale field experiments in many localities. The conclusions drawn from this practical work were that the essential steps to be taken in the control of the boll-weevil are exactly the ones that should be followed in the warfare against the boll-worm. The following is the statement by Dr. Quaintance on this subject :

The steps in the production of early cotton include the principal recommendations for the growing of cotton in the presence of boll-weevils. It is therefore seen that injury from the cotton boll-worm and the cotton boll-weevil may be best avoided by the adoption of one and the same course of improved farm practice. The spread of the latter species will render imperative the adoption of these methods in profitable cotton culture, and along with this change the ravages of the boll-worm during normal seasons should become less and less.

The development of weevil poisoning adds another interesting phase to the question of control of the cotton boll-worm. Years ago experiments were conducted which showed that a certain poisoning procedure would control the boll-worm, but it was found that the boll-worm damage was not sufficiently heavy to justify the expenditure necessary for this poisoning. Since the development of weevil poisoning, however, it is interesting to note that the procedure recommended for the two insects is practically identical; thus satisfactory boll-worm control would be secured as a supplementary benefit to be derived from weevil poisoning.

**THE COTTON LEAF-WORM.**—The relation between the cotton leaf-worm (*Alabama argillacea* Hübner) or the so-called army-worm and the control of the cotton boll-weevil deserves special attention (shown in BULLETIN, No. 6).

Years ago the efforts of entomologists and planters were directed toward some means of destroying the leaf-worm. The use of Paris green and other poisons was found to be very effective. The complication of the situation since the arrival of the boll-weevil has caused a decided change of attitude toward the leaf-worm. This insect usually does not become abundant until late in the season; and unless the boll-weevil is controlled, the cotton plants are not setting any bolls at that time. Consequently, the leaf-worm does not injure the crop and is really often beneficial, because it removes the food supply of the boll-weevils. The use of calcium arsenate to control the boll-weevil also prevents leaf-worm damage; thus such poisoned fields are not subject to injury until boll-weevil poisoning has been stopped. Then, the question of whether or not additional applications should be made to control the leaf-worm is to be determined entirely on the basis of the young fruit on the plants and the possibility of any of this fruit reaching maturity before frost if protected from damage. Under such conditions poisoning solely for the control of the leaf-worm is very seldom necessary or advisable.

When the army-worm comes early in the season, and the crop is late, as was the case in 1923, the damage done by this insect is very considerable, as it eats up the leaves which act as the lungs to the young plant and thus impede the development of the fruit. Moreover, the early arrival of the pest (it comes annually from Brazil and in increasing number of late) has been the cause of three to four broods hatching out instead of two. The army-worm can devour the leaves and young shoots of a field in one night, and one can hear the worm gnawing in the dark. The damage done by this insect pest during the last season in the black cotton tract of Texas was very formidable.

ARTHUR FOSTER. ARNO S. PEARSE.

(Concluded.)

# The World's Cotton Situation for the Season of 1922-1923.

A Statistical Survey Prepared by the Textile Division,  
United States Department of Commerce.

*Republished from the January 14, 1924, issue of "Commerce Reports."*

SINCE the publication on September 10, 1923, of the preliminary statement on the world cotton situation for the 1922-23 season, additional data have been received from commercial representatives abroad and other sources, on which basis a more detailed and revised estimate is afforded.

The production of cotton in the United States in 1922-23 amounted to 9,762,000 bales, an increase of 1,800,000 bales, or 23 per cent. over that of 1921-22. The production in the United States during the past five years was as follows: 1918, 12,041,000 bales; 1919, 11,421,000 bales; 1920, 13,440,000 bales; 1921, 7,954,000 bales; and 1922, 9,762,000 bales.

The world commercial production of all kinds of cotton, including American, in 1922-23 is estimated at 17,647,000 bales—an increase of 2,963,000 bales, or 20 per cent. over that of 1921-22. The actual crop amounted to 18,695,000 bales in 1922-23, compared with 15,326,000 bales in 1921-22. The following table shows the estimated cotton production by principal countries for the past two years:—

#### ESTIMATED WORLD PRODUCTION OF COTTON.

Countries .		1921-1922 Bales*		1922-1923 Bales*
United States ..	..	7,954,000	..	9,762,000
India :				
Commercial crop ..	..	3,448,000	..	4,048,000
Total crop ..	..	3,748,000	..	4,348,000
China :				
Commercial crop ..	..	1,175,000	..	1,300,000
† Total crop ..	..	1,517,000	..	2,048,000
Egypt ..	..	902,000	..	1,170,000
Brazil ..	..	505,000	..	553,000
Mexico ..	..	147,000	..	178,000
Peru ..	..	157,000	..	137,000
Chosen ..	..	92,000	..	108,000
Russia ..	..	43,000	..	55,000
Uganda ..	..	31,000	..	75,000
All other countries ..	..	280,000	..	266,000

\* Bale weighs 473 lbs. net.

† Produced in the principal cotton growing districts.

World consumption of American cotton during the season of 1922-23 is estimated at about 12,548,000 bales, or slightly above the 1921-22 consumption. World consumption of all kinds, including American, is estimated at 21,041,000 bales, or about 1,000,000 bales, or 5 per cent. greater than that of the preceding season. The estimated consumption of cotton by countries for the past two years was as follows:—

## ESTIMATED WORLD CONSUMPTION OF COTTON FOR SEASONS ENDED JULY 31.

Countries	American		All kinds including American	
	1922	1923	1922	1923
	Bales <sup>a</sup>	Bales <sup>a</sup>	Bales <sup>a</sup>	Bales <sup>a</sup>
America :				
United States .. ..	5,411,000	6,148,000	5,708,000	6,490,000
Canada .. ..	200,000	204,000	205,000	207,000
Mexico .. ..	20,000	20,000	100,000	136,000
Brazil .. ..	—	—	376,000	442,000
All other .. ..	—	—	39,000	39,000
Totals .. ..	5,631,000	6,372,000	6,428,000	7,314,000
Europe :				
Great Britain .. ..	2,120,000	1,825,000	2,900,000	2,875,000
France .. ..	742,000	762,000	1,063,000	1,084,000
Germany .. ..	900,000	809,000	1,193,000	1,049,000
Russia .. ..	28,000	126,000	401,000	372,000
Italy .. ..	566,000	597,000	786,000	907,000
Czecho-Slovakia .. ..	299,000	190,000	377,000	247,000
Spain .. ..	303,000	256,000	371,000	362,000
Belgium .. ..	140,000	132,000	229,000	249,000
Switzerland .. ..	57,000	59,000	102,000	111,000
Poland .. ..	175,000	172,000	219,000	226,000
Austria .. ..	88,000	67,000	113,000	102,000
Netherlands .. ..	88,000	83,000	107,000	105,000
Sweden .. ..	76,000	80,000	78,000	88,000
Portugal .. ..	38,000	47,000	66,000	81,000
Finland .. ..	84,000	88,000	84,000	83,000
Denmark .. ..	19,000	27,000	19,000	29,000
Norway .. ..	7,000	7,000	7,000	7,000
All other .. ..	80,000	30,000	68,000	68,000
Totals .. ..	5,710,000	5,302,000	8,133,000	7,995,000
Asia :				
India .. ..	56,000	27,000	1,872,000	1,751,000
Japan .. ..	798,000	747,000	2,200,000	2,372,000
China .. ..	180,000	100,000	1,834,000	1,541,000
All other .. ..	—	—	53,000	53,000
Totals .. ..	1,034,000	874,000	5,459,000	5,717,000
All other .. ..	—	—	15,000	15,000
GRAND TOTALS ..	12,375,000	12,518,000	20,035,000	21,041,000

\* One bale weighs 478 lbs. net.

In connection with cotton consumption, it is interesting to observe the changes which have taken place during the past 14 years in Europe, the United States and other countries. Before the war, Europe was consuming about 55 per cent.; the United States, 24 per cent.; and other countries, 21 per cent. of the world total. With the beginning of the war, consumption in Europe gradually decreased, while that in the United States and other countries increased. In 1917-18 Europe and the United States were using about equal amounts of cotton, and the consumption in other countries was 29 per cent. of the world total, compared with the pre-war figure of 21 per cent. During the past four years the annual consumption in Europe averaged 40 per cent. of the total, and that of both the United States and other countries, 30 per cent.

Compared with pre-war figures the post-war average consumption for the world was 92 per cent.; for Europe, 66 per cent.; the United States, 118 per cent.; and other countries, 129 per cent.—the last-named figure being chiefly accounted for by the increased activity of the cotton spinning industry of Japan and China.

It may be of interest to note how, with the decreased production and the somewhat increased consumption in the United States, the proportion of the American crop exported diminishes. In the five-year period, 1909–10 to 1913–14, the production averaged 13,033,000 bales, and 9,299,000 bales were exported, or approximately 71 per cent. of the crop. In the four-year period, 1919–20 to 1922–23, 6,008,000 bales were exported, which represented 56 per cent. of the average production of 10,644,000 bales during these years.

The following table shows the cotton consumed and its ratio to the world total for Europe and the United States:—

#### COTTON CONSUMPTION IN EUROPE, THE UNITED STATES, AND THE WORLD

Year	Consumption			Percentage of World Total Consumed by		
	World	Europe	United States	Europe	United States	Other countries
1909–1910 ..	19,164	10,295	4,530	54	24	22
1910–1911 ..	19,888	11,040	4,408	56	22	22
1911–1912 ..	21,534	11,998	5,026	56	23	21
1912–1913 ..	22,055	12,158	5,575	53	25	20
1913–1914 ..	22,198	12,020	5,465	54	25	21
Average ..	20,968	11,304	5,001	55	24	21
1914–1915 ..	20,670	10,606	5,485	51	26	23
1915–1916 ..	21,978	10,878	6,270	50	28	22
1916–1917 ..	21,108	9,044	6,653	43	32	25
1917–1918 ..	18,515	6,621	6,435	36	35	29
1918–1919 ..	16,704	5,962	5,831	36	35	29
Average ..	19,795	8,622	6,185	43	31	26
1919–1920 ..	19,300	7,700	6,483	40	34	26
1920–1921 ..	16,905	6,735	4,905	40	29	31
1921–1922 ..	20,085	8,183	5,708	41	28	31
1922–1923 ..	21,041	7,995	6,490	38	31	31
Average ..	19,320	7,041	5,897	40	30	30

\* One bale weighs 47½ lbs. net.

Visible and invisible stocks of American cotton in all parts of the world on July 31, 1923, are estimated at about 3,065,000 bales, against 5,129,000 on the corresponding date the year before. Stocks of all kinds of cotton, including American, on July 31, 1923, are estimated at about 6,341,000 bales, compared with 9,323,000 bales on July 31, 1922. The world stocks at the end of the past three seasons were as follows: July 31, 1921, American, 9,351,000 bales, and all kinds (including American), 14,752,000 bales; July 31, 1922, American, 5,129,000 bales, and all kinds, 9,323,000 bales; and July 31, 1923, American, 3,065,000 bales, and all kinds, 6,341,000 bales. The major locations of the stocks for the past two years are given in the following table:—

## ESTIMATED WORLD STOCKS OF COTTON FOR SEASONS ENDED JULY 31.

Countries	American		All kinds including American	
	1922	1923	1922	1923
	Thous. ind. Bales <sup>*</sup>	Thousand Bales <sup>*</sup>	Thousand Bales <sup>*</sup>	Thousand Bales <sup>*</sup>
Mill				
United States .. .	1,124	977	1,222	1,089
Great Britain .. .	183	101	337	240
Continent:				
France .. .	124	80	211	172
Germany .. .	130	50	188	80
Italy .. .	119	80	173	150
Czecho-Slovakia .. .	42	32	55	41
Spain .. .	118	32	148	37
Belgium .. .	21	18	42	44
Switzerland .. .	14	11	32	30
All other .. .	92	86	251	155
India .. .	19	5	735	589
Japan .. .	307	160	798	725
China .. .	55	20	303	201
All other .. .	81	32	201	110
Totals .. .	2,379	1,687	1,721	3,663
In public storage in the United States .. .	1,400	867	1,187	939
Elsewhere in the United States .. .	125	60	125	60
In British ports .. .	518	164	861	473
In Continental ports .. .	452	184	508	204
At Dombay .. .	—	—	409	200
At Alexandria .. .	—	—	326	210
Afloat to Great Britain .. .	54	11	121	81
Afloat to Continent.. .	122	83	211	189
In and to other countries .. .	70	57	554	320
GRAND TOTALS .. .	5,129	3,063	9,323	6,841

\* One bale weighs 478 lbs., net.

The world supply and distribution of cotton are summarized in the following table:—

## ESTIMATED WORLD SUPPLY AND DISTRIBUTION OF COTTON FOR SEASONS ENDED JULY 31

Items	1922 Bales <sup>*</sup>	1923 Bales <sup>*</sup>
American (in all countries)		
Stocks, beginning of season .. .	9,351,000	..
Production (commercial crop) .. .	7,954,000	..
Sundries in the United States .. .	155,000	..
Total supply .. .	17,460,000	..
Consumption .. .	12,375,000	..
Stocks, end of season .. .	5,129,000	..
All kinds (including American)		
Stocks, beginning of season .. .	14,852,000	..
Production (commercial crop) .. .	14,684,000	..
Sundries in the United States .. .	100,000	..
Total supply .. .	29,186,000	..
Consumption .. .	20,085,000	..
Stocks, end of season .. .	9,323,000	..

\* One bale weighs 478 lbs., net.

† Officially reduced by 224,000 bales March 25, 1923.

Linters are not included in figures for the United States. In the other countries separate data for linters are not available. Figures for stocks differ from those obtained by deducting consumption from supply because there is an element of uncertainty in some of the estimates, and it is not possible to arrive at a complete balance. The production figures represent actual crops, with the exception of India and China, where only the cotton produced for mill consumption and export is considered, cotton used in household consumption not being included. "Sundries in the United States" includes imported Mexican cotton—which passes as American—the "city crop" and cotton otherwise unaccounted for.

## Notes on the Cotton Market at Le Havre.

*This article has been written by a gentleman who has had long experience of cotton merchanting, and is particularly well versed in the customs of the cotton market at Havre.*

### FUTURES MARKET.

In consequence of the various measures taken during the war regarding the futures market at Havre, and owing to the reorganization of the latter ruling in that market, the following are the conditions at present:

Once concluded, all transactions in futures are registered and guaranteed by the Liquidation Office, a limited company with a capital of 6 million francs.

The Liquidation Office issues contracts to the contracting parties and undertakes to obtain from them:

(1) An original deposit fixed according to the value of the goods which is at present 130 francs per bale.

(2) Margins according to whether prices are rising or falling, and without ever breaking into the original deposit.

Operations in futures are effected through brokers, who are either duly recognized or belong to one of the two Brokers' Associations and transact business either among themselves or with merchants established at Havre.

The latter pay a brokerage, the rate of which was fixed long before the war at  $\frac{1}{8}$ th per cent. for buying and at  $\frac{1}{8}$ th per cent. for selling.

Consequently, the cost of an operation in futures for a commission agent established at Havre is  $\frac{1}{4}$  per cent. plus liquidation costs, should the operation be liquidated without giving rise to an actual delivery of goods or to taking over a delivery of goods.

It follows that outside clients are obliged to pay these brokerages and expenses, plus a commission representing the remuneration of the commission agent.

Merchants at Havre are prohibited from doing direct business in futures among themselves, and likewise the brokers have agreed not to solicit orders from, or do business with others than merchants, bankers and commission agents established at Havre.

Twice a day, i.e., at 10 a.m. and 4 p.m., a meeting is held for "CALI," during which the operations are called out aloud and the current prices discussed by taking the 12 months one after the other in order to establish a quotation which is considered official by the public. The last price, which constitutes the "quotation," is either "nominal" if there have

been no buyers or sellers at this price, or "buyer" or "seller," and these indications are given by means of the letters N., A. and V. The letter P. signifies that the price has actually been paid or used.

A certain proportion of the operations in futures is done at these two meetings, but as the market remains open from 10 a.m. to 12 a.m. or 1 p.m. and from 2 p.m. to 6 p.m., numerous operations are also effected between the two calls and after the second.

The market quotations at Havre for futures are influenced by:

(1) The quotation of the leading markets, i.e., New York, New Orleans and Liverpool, but principally New York.

(2) The fluctuations in the rate of exchange which, in this case, is the rate of the dollar.

The opening quotations at Havre, i.e., those made at the 10 a.m. call, theoretically reflect the opening quotations at New York by taking into account the dollar exchange and the supplementary conditions of parity (freight, insurances, interests, discount, etc.). The arbitration influence, which at other times rapidly established a normal parity between America and Havre, is practically at a standstill owing to exchange risks. This is in a large measure the cause of the prolonged "disparities" which may exist either in favour of the French buyers, or, on the contrary, against them.

When the contracts are liquidated simply by a sale or purchase, the Liquidation Office opens creditor or debtor accounts, and when these operations refer to long dates, the profits or losses are discounted by the Liquidation Office at a rate of interest leaving to it a margin of about 1 per cent. in relation to the discount rate of the Bank of France.

The liquidation and settlement of a transaction in futures entail as a consequence the returning of the deposit in cases where the operator has no transactions going through with the Liquidation Office.

When a transaction in futures is liquidated by a delivery or the taking over of cotton for spinning, the cotton supplied is arbitrated by the brokers, nominated by ballot, and a settlement is made in which the differences are fixed in advance, with reference to the period, for the various classifications likely to be supplied. These differences are revised from time to time. The basis of the period is the classification Fully Middling Gulf which is nearly as possible equivalent to that of Liverpool and to American Middling.

The lowest classification which may be supplied is Low Middling, premium is placed upon the length or the character of the fibre which, however, must be at least of 23 mm. in length.

The cotton supplied for futures must be shipped from a Gulf port under a penalty of 4 francs per 50 kilos, and it must be delivered to one and the same warehouse, excluding deliveries to quay. It must also not include bales which are not clearly original bales. Consequently it is not permissible, under penalty of refusal or obligation to replacement, to supply re-made bales or made-up bales, or to supply more than 60 per cent. of damaged bales, which latter must not show a damage superior to 12 kilos. If the proportion of bales liable to refusal exceeds 30 per cent., the entire lot must be replaced, i.e., the delivery effected over again.

A lot of cotton delivered on account of a futures contract which has been supplied and arbitrated upon under the desired conditions and stored at the public warehouses, must always be re-delivered in its entirety and is called "*filière typée*" (standardized cotton).

It should be added that, contrary to the usage in all other markets in futures, the contract unit at Havre is not 100 bales but 50 bales, representing 11,000 kilos nett.

#### SPOT COTTON MARKET.

Before 1914 the Havre market imported about 1,250,000 bales of cotton of which the American cotton amounted to about 1 million bales. During the war the imports, as everybody knows, were very irregular and rationed, either owing to restrictive measures or later on through the institution of the Cotton Trust.

Since importing operations became free, i.e., since 1919-1920, the amount of imports as well as the outgoings at Havre have been very irregular, and although most of those spinning mills which had been destroyed during the war have been rebuilt, and whilst the return of Alsace to France with its 2 million spindles should normally lead to greater importation of cotton at Havre, the total amount of imports, after having remained in the neighbourhood of 700,000 for the seasons 1919-1920 and 1920-1921, has barely risen above 1 million bales during the seasons 1921-1922 and 1922-1923.

Although no other French ports have become cotton markets, it must nevertheless be acknowledged that Bordeaux, Dunkirk and especially Marseilles have received important quantities of cotton, imported direct from the countries of origin by the French industry.

At the same time, a certain quantity of cotton has also been sent to our mills in the East, via Antwerp and the Rhine.

The greater part of the cotton, except that of the last-mentioned category, is of origin other than the United States, and in this connection it is remarkable to notice that even at Havre the proportion of cotton of "various origins" imported in comparison to the total amount is much larger than before the war. In fact this proportion was 20 per cent. in 1919-1920, 15 per cent. in 1920-1921, 22.5 per cent. in 1921-1922, 25 per cent. in 1922-1923, as against 7.8 per cent. in 1913-1914.

The small size of the American crops, the importation difficulties, of which the most important is the delay, the tax on the turnover and rate of exchange, have made the position of the importer and stock holder extremely difficult, and this is the reason why the Havre spot cotton market is supplied now by hardly anything else but unclassed American cotton, cotton of foreign origin in particular from South America, the West Indies and the French Colonies, and finally by some American consignments.

The fact of this situation is so marked that it would often be impossible to find in Havre a few hundred bales of American cotton of current classification, in order to fulfil a contract if the supplier did not hold any stock himself. In short, stocking and re-sorting American cotton is hardly any longer carried on, and the protection of the futures market is absolutely uncertain, so that this market has become a real futures market in which there is simply a doubt as to the quality one is likely to receive.

In the past the whole of the spot cotton market consisted of the following :

- (1) Import merchants who usually did not deal with customers and restricted themselves to dealings on the spot.
- (2) Commission agents who, for a commission and brokerage, bought cotton for the account of spinning mills and invoiced it for prompt cash payment with discount, or by giving a credit.

(3) Brokers whose remuneration was fixed to  $\frac{1}{4}$  per cent. for each transaction of purchase or sale, and whose work consisted in classifying and selling cotton for account of importers and in buying for account of commission agents. These brokers therefore received  $\frac{1}{2}$  per cent. brokerage when they sold to commission agents cotton which they had classified themselves for account of an importer.

They all had a sample room in which the "averages" of the lots were put on view, which they had classified and which they were entrusted to sell.

Later on a large number of brokers began to deal in futures in addition to their spot market transactions; many also accepted agencies from American firms for the sale of cotton to importers. As they thus received remuneration in the shape of brokerages and commissions which multiplied themselves for one and the same transaction, they began doing business for their own account or went half shares with commercial houses established at Havre.

At the present time it may be said that brokers on the spot cotton market have practically disappeared and have been replaced by brokers dealing in both spot and futures transactions, or only in futures, and to agents of American or other foreign firms, some of whom act at the same time as brokers.

On the other hand, the commission agent in cotton, pure and simple, has practically disappeared from Havre, as also the cotton importer who limited his operations to dealings on the spot.

Most of the cotton firms are engaged in both the importing and selling to cotton mills, and restrict their operations to commission and *del credere* business, while combining the importing with futures transactions.

Such a state of things has become more and more general since the whole of the French spinning mills have acquired the habit of buying most of their cotton themselves in futures at Havre, which practice would seem to be a mistake, as these transactions are one of the dominant causes of the permanent delay which exists at Havre and thus impede the stocking of the market.

The whole of the spot cotton operations carried on at Havre include:

(1) The supplying of cotton according to the classifications adopted at Havre and consequently subjected to eventual arbitrations based on these classifications (this naturally only applies to sales made on classification and not to sales of cotton in stock, which is always bought for quality inspected, recognized and agreed upon).

(2) The assigning to American cotton of a tare of 5 per cent. after deduction of the rings on the bales at the time of delivery and a nett tare for cotton of other origin.

(3) A cash payment with  $2\frac{1}{4}$  per cent. discount which originally represented 4 months and 15 days at the rate of 6 per cent. per annum, or payment in 15 days with 2 per cent. discount. In practice it may be said that all deals made on the spot are without exception for cash payment with  $2\frac{1}{4}$  per cent. discount; this also applies to all cotton supplied on account of a futures contract.

At the same time, the spinning mills frequently ask for the invoices to be made out for cash payment with  $2\frac{1}{4}$  per cent. discount and to draw at three months for the nett amount of the invoices by adding the interest at the rate fixed by the Bank of France.

The cotton is invoiced to spinning mills under consideration of  $\frac{1}{4}$  per cent. brokerage and a commission of 1 per cent.

*The following is the original article in French.*

## Notes sur le Marché Cotonnier du Hâvre.

*Cet article émane d'une personnalité que à une longue expérience des affaires de coton brûl et qui est particulièrement au courant des usages de la place du Hâvre.*

### MARCHÉ A TERME.

**A** LA suite des diverses mesures qui ont été prises pendant la guerre au sujet du marché à terme du Hâvre, et de la réorganisation de ce marché il se trouve actuellement dans les conditions suivantes :

Toutes les transactions effectuées à terme sont enregistrées et garanties par la Caisse de Liquidation des affaires en marchandises qui est une Société Anonyme au capital de 6,000,000 de francs.

La Caisse de Liquidation délivre des contrats aux parties contractantes et se charge de leur réclamer :

(1°) Un dépôt d'origine qui est fixé suivant la valeur de la marchandise et qui est actuellement de 130 francs par balle.

(2°) Des marges au fur et à mesure que les cours haussent ou baissent, et sans que le dépôt d'origine puisse jamais être entamé.

Les opérations à terme sont effectuées par l'intermédiaire des courtiers qui sont, soit asservis, soit membres d'une des deux associations de courtiers, et qui traitent soit entre eux, soit avec des négociants établis au Hâvre.

Ces derniers paient un courtage dont le taux, bien longtemps avant la guerre, a été fixé à  $\frac{1}{2}$  pour cent à l'achat et à  $\frac{1}{2}$  pour cent à la vente.

Le coût d'une opération à terme pour un négociant commissionnaire du Hâvre est donc au total de  $\frac{1}{4}$  pour cent plus les frais de liquidation dans le cas où cette opération se trouve liquidée sans donner lieu à une livraison de marchandises, ou à une prise de livraison de marchandises.

Il s'en suit que la clientèle de l'extérieur est obligée de payer ces courtages et ces frais, plus une commission qui constitue la rémunération du négociant commissionnaire.

Les négociants de la place du Hâvre se sont interdits de traiter directement entre eux les opérations de terme, et par contre les courtiers s'interdisent de solliciter des ordres et de traiter des affaires en dehors des négociants, banquiers et commissionnaires de la place du Hâvre.

Deux fois par jour, à dix heures et à seize heures se tient une réunion appelée "CALL" au cours de laquelle les opérations se traitent à haute voix, et les cours sont discutés en prenant les douze mois de la cote l'un après l'autre, de manière à établir un cours qui est considéré comme officiel par le public. Le dernier cours qui constitue la "cote" est soit "nominal" s'il n'y a pas eu d'acheteur ou de vendeur à ce cours, soit "acheteur," soit "vendeur" et ces indications sont données par les lettres N., A. et V. La lettre P. signifie que le cours a été effectivement payé ou pratiqué.

Une certaine partie des opérations à terme se traite au cours de ces deux séances mais le marché restant ouvert de 10 heures à midi ou midi 15 et de 14 heures à 18 heures, de nombreuses opérations sont aussi faites entre les deux call et après le second.

Les cours du marché à terme du Hâvre sont influencés :

(1°) Par les cours des marchés dirigeants qui sont New York, New Orleans, et Liverpool, mais principalement New York.

(2°) Par les fluctuations du change qui dans l'espèce est le change du dollar.

Les cours d'ouverture du Hâvre, c'est à dire ceux du call de 10 heures, reflètent théoriquement les cours d'ouverture de New York en tenant compte du cours du dollar et des conditions accessoires de la parité (frêt, assurances, intérêts, escompte, etc.). Le jeu de l'arbitrage qui autrefois établissait rapidement une parité normale entre l'Amérique et le Hâvre est pratiquement arrêté, à cause des risques de change. C'est en grande partie ce qui occasionne des "disparités" prolongées qui peuvent être soit en faveur des acheteurs Français, soit contraires à leurs intérêts.

Lorsque les contrats se liquident simplement par un achat ou une vente ils donnent lieu de la part de la Caisse de Liquidation à des comptes créditeurs ou débiteurs, et lorsque ces opérations ont porté sur des échéances éloignées, les profits ou les pertes sont escomptés par la Caisse de Liquidation à un taux d'intérêts au laissant une marge d'environ 1 pour cent par rapport au taux d'escompte de la Banque de France.

La liquidation et le règlement d'une affaire de terme rendent naturellement exigible la restitution du dépôt dans le cas où l'opérateur n'aurait pas d'autres opérations en cours avec la Caisse de Liquidation.

Lorsqu'une opération à terme se liquide par une livraison ou une réception de filières, le coton livré est arbitré par des courtiers désignés par le sort et un règlement intervient dans lequel il est fait état de différences fixées d'avance, par rapport au terme, pour les différents classements susceptibles d'être livrés. Ces différences sont revisées de temps en temps. La base du terme est le classement de Fully Middling Golfe à peu près équivalent à celui de Liverpool et au Middling Americain.

Le classement le plus bas qu'on puisse livrer est le Low Middling, il n'est attribué aucune prime pour la longueur et le caractère de la soie qui doit cependant avoir un minimum de 23 mm.

Les cotons livrés à terme doivent être embarqués d'un port du Golfe, sous peine d'une pénalité de 4 Francs par 50 Kgs. et la livraison des filières doit être faite dans un seul et même magasin, à l'exclusion de livraisons sur quai, et ne doit pas comporter de balles qui n'aient pas nettement le caractère de balles d'origine. Il est donc interdit de livrer des balles refaites ou bonifiées, et de plus de livrer plus de 6 pour cent de balles avariées, lesquelles ne doivent pas être avariées à plus de 12 Kgs. sous peine de refus ou de remplacement. Lorsque la proportion de balles refusables dépasse 30 pour cent la livraison doit être recommencée en entier.

Une filière (c'est à dire un lot de coton livré en aliment d'un contrat de terme), qui aurait été livrée et arbitrée dans les conditions voulues, et emmagasinée dans les Magasins Publics, est toujours relivrable en entier et prend le nom de "filière typée."

Il est encore à noter que contrairement à ce qui se passe dans tous les autres marchés à terme, l'unité de contrat au Hâvre n'est pas de 100 balles mais de 50 balles représentant 11,000 Kgs. net.

#### MARCHÉ DE COTON EFFECTIF.

Le marché du Hâvre avant 1914 importait environ 1,250,000 balles de coton sur lesquelles le coton d'Amérique intervenait pour environ 1,000,000 de balles. Pendant la guerre, les importations ont été fort

irrégulières, et contingentées, ainsi que tout le monde le sait, soit par des mesures restrictives, soit plus tard par l'institution d'un Consortium Cotonnier.

Depuis que l'importation est devenue libre, c'est à dire depuis 1919-1920, les chiffrés d'importation, ainsi que les débouchés de la place du Hâvre, ont été fort irréguliers, et bien que celles de nos filatures, qui avaient été détruites pendant la guerre, aient, pour la plupart, été reconstruites, et que d'autre part le retour à la France de l'Alsace avec ses 2,000,000 de broches, doivent normalement amener le Hâvre à importer plus de coton, le chiffre des importations totales après être resté voisin de 700,000 balles pour la saison 1919-1920 et 1920-1921, s'est à peine élevé au dessus de 1,000,000 de balles au cours des saisons 1921-1922 et 1922-1923.

Sans qu'aucun autre port Français soit devenu un marché de coton, il faut cependant reconnaître que Bordeaux, Dunkerque et surtout Marseille ont reçu des quantités importantes de coton importé directement des pays d'origine par l'industrie Française.

D'autre part, une certaine quantité de coton a été également amenée dans nos usines de l'Est via Anvers et le Rhin.

La plupart de ces cotons sauf pour ceux de la dernière catégorie sont des cotons de provenance autre que les Etats Unis, et à ce sujet il est remarquable de constater que même au Hâvre, la proportion de cotons "divers" importés par rapport au total est beaucoup plus considérable qu'avant la guerre. Cette proportion a été en effet de 20 pour cent en 1919-1920, 15 pour cent en 1920-1921, 22.5 pour cent en 1921-1922, 25 pour cent en 1922-1923, par rapport à 7.8 pour cent en 1913-1914.

La petitesse des récoltes Américaines, les difficultés d'importation dont la principale est le dépôt, la taxe sur le chiffre d'affaires et le change, ont rendu la situation d'importateur et de détenteur de stock extrêmement difficile, et c'est pourquoi le marché de disponible du Hâvre n'est plus guère alimenté que par des cotons Américains déclassés, des cotons de provenances étrangères, en particulier de l'Amérique du Sud, des Antilles et des Colonies Françaises, et enfin par quelques consignations Américaines.

Cette situation est tellement marquée qu'il serait souvent matériellement impossible de trouver au Hâvre quelques centaines de balles d'un coton d'Amérique de classement courant, pour remplir un contrat au cas où l'on n'aurait pas soi-même le stock nécessaire. En un mot, l'approvisionnement et le réassortiment en coton d'Amérique n'existent pour ainsi dire plus, et la protection du marché à terme est absolument aléatoire, de telle sorte que ce marché est devenu un véritable marché à livrer, dans lequel il y a simplement un doute au sujet de la qualité qu'on est susceptible de recevoir.

Autrefois l'ensemble du marché de coton effectif comportait :

(1°) Des négociants importateurs qui généralement ne travaillaient pas avec la clientèle et se contentaient de faire des affaires de place.

(2°) Des commissionnaires qui, moyennant une commission et un courtage, achetaient le coton pour le compte de la filature et le lui facturaient avec paiement comptant sous escompte, ou en lui faisant du crédit.

(3°) Des courtiers dont la rémunération était fixée à  $\frac{1}{4}$  pour cent chaque opération d'achat ou de vente, et dont le rôle consistait à classer et à vendre le coton pour le compte des importateurs et à l'acheter pour

le compte des commissionnaires. Ces courtiers se trouvaient donc toucher  $\frac{1}{2}$  pour cent de courtage lorsqu'ils vendaient à des commissionnaires du coton qu'ils avaient eux-mêmes classé pour le compte d'un importateur.

Ils avaient tous une chambre d'échantillons dans laquelle étaient exposées les "communes" des lots qu'ils avaient classés et qu'ils étaient chargés de vendre.

Plus tard un grand nombre de ces courtiers se mit à faire en même temps que du coton effectif, des opérations de terme ; beaucoup aussi acceptèrent l'agence de maisons Américaines pour vendre du coton aux importateurs et, trouvant ainsi une rémunération sous forme de courtages et de commissions qui arrivaient à se multiplier pour une seule et même affaire, ils en vinrent à traiter des opérations pour leur propre compte ou en compte à demi avec des maisons de commerce établies au Hâvre.

A l'heure actuelle, on peut dire que les courtiers en coton effectif ont à peu près disparu pour faire place à des courtiers faisant à la fois le terme et le coton effectif, ou simplement le terme, et à des agents de maisons Américaines ou étrangères dont quelques une sont en même temps des courtiers.

D'autre part, le commissionnaire en coton pur et simple a pour ainsi dire disparu du Hâvre, de même que l'importateur de coton limitant ses opérations à des affaires de place.

La plupart des maisons de coton font à la fois l'importation et la vente en filature, réduisant leurs opérations à des affaires de commission et de ducroire, en combinant l'importation avec le terme.

Ceci est devenu de plus en plus courant depuis que l'ensemble de la filature Française a pris l'habitude d'acheter la majeure partie de son coton à écarts sur le terme du Hâvre, ce qui semble d'ailleurs être une erreur car ces affaires sont une des causes dominantes du déport qui existe au Hâvre à l'état permanent et elles entravent par suite l'approvisionnement du marché.

L'ensemble des opérations en coton effectif traitées aux conditions du Hâvre comporte :

(1°) La livraison de coton conforme au classement adoptés au Hâvre et sujette en conséquence à des arbitrages éventuels prenant comme base ces classements (ceci ne s'applique naturellement qu'aux ventes faites sur classement, et non pas aux ventes de coton disponible qui est toujours acheté qualité vue, reconnue et agréée).

(2°) A l'attribution en matière de coton d'Amérique, d'une tare de 5 pour cent après déduction des cercles existants sur les balles au moment de la livraison, et d'une tare nette pour les coton d'une autre provenance.

(3°) Un paiement comptant sous escompte de  $2\frac{1}{4}$  pour cent lequel représentait à l'origine 4 mois et 15 jours au taux de 6 pour cent l'an, ou encore un paiement à 15 jours sous escompte de 2 pour cent. Dans la pratique il est à remarquer que toutes les affaires de place sans exception se traitent au comptant sous escompte de  $2\frac{1}{4}$  pour cent de même que toutes les livraisons de filières faisant aliment aux contrats de terme.

D'autre part, un usage fréquent de la filature consiste à demander à ses fournisseurs d'établir les factures comptant sous escompte de  $2\frac{1}{4}$  pour cent et de tirer à trois mois pour le net des factures, en ajoutant les intérêts au taux de la Banque de France.

Le coton est facturé aux filateurs en tenant compte de  $\frac{1}{4}$  pour cent de courtage et d'une commission de 1 pour cent.

## The Loss in Lancashire's Export Trade.

*The following is an extract published in the "Manchester Guardian Commercial" of a paper read by Professor G. W. Daniels, M.A., to the Manchester Statistical Society:—*

THE paper starts by drawing attention to and amplifying the recent Board of Trade estimate of the comparative significance of the home and export demand for British textiles. It is then computed that the total export of piece goods had dwindled in 1923 to 59 per cent. of the 1913 total, the shrinkage being shared out as follows between the various qualities of material: grey to 52 per cent., white to 62 per cent., printed to 61 per cent., dyed to 71 per cent., and coloured to 80 per cent. In the meantime the average price per yd. had risen from 3·22d. to 7·90d. Yarn exports had fallen only to 69 per cent. of the 1913 figure, and in 1922 they were as high as 96 per cent. The changes in the distribution of piece goods exports are well illustrated by the following table of percentages:—

TABLE I.

Markets	Percentage distribution		Percentage changes in quantities	
	1913	1923	1913	1923
Far East .. .. ..	60	46	100	44
Near East .. .. ..	10	9·8	100	56
Central and South America .. ..	9·5	10	100	71
Europe .. .. ..	6	7·2	100	88
Self-governing colonies .. ..	5·5	8	100	88
Africa .. .. ..	4·8	7·5	100	88
United States .. .. ..	·6	4·2	100	383
Other countries .. .. ..	3·6	7·3	100	179
	100	100		
Totals in million yds... ..	7,075	4,272		

It is clear that only to a small extent is the great reduction in demand for British piece goods to be attributed to the markets constituted by Europe, the self-governing colonies and the United States. But in 1913 these markets absorbed only 12 per cent. of the total export, and although this percentage had risen to 20 in 1923 such a recovery will not compensate for the loss of trade in the Far East, Near East and Latin America, which in 1923 took about 50 per cent. less of Lancashire goods than in 1913. This is the deficiency which needs to be repaired.

### MAIN CAUSES.

In examining the causes of the situation one must not neglect the obvious, and that is the general dislocations resulting from the war. Then there is the post-armistice boom and its collapse, accentuated in the case of India by the fall in the rupee exchange, the incidence of an adverse balance of trade for two years in succession, a poor monsoon,

the loss of Russia and Central Europe as an outlet for Indian goods, and the decline of internal prices in other important markets, such as the United Kingdom, the United States and Japan. Conditions in China and South America were similar in many ways, while in the Near East war has only too recently been eliminated from the scene.

How far have conditions so returned to normal as to give hope of a speedy restoration of pre-war activity in the cotton industry? In the Near East, if the recent settlements prove effective and quiet is maintained in Egypt, there is ground for hope that the position will show much improvement in a comparatively short time. In Central and South America commercial and financial dislocation still persists, but, taking all the countries together, 1923 has witnessed a large increase in their imports of piece goods, and on the whole this market may be regarded with considerable confidence.

The Far Eastern market, especially the Indian section, requires closer consideration. The shrinkage of demand for British piece goods between 1913 and 1923 is general to all sections of this market, which suggests that the fundamental causes are the same. In Japan the earthquake was perhaps responsible for the greater decline in 1923. In China there is the additional cause of internal disorder. Both countries have extended their own production of cotton goods, but this extension is not of such a nature as to account to any extent for the great decline in Lancashire exports to the Far East. The growth of native manufacture and of Japanese competition is perhaps of greater importance in the Indian market, and the following statistics are important:—

TABLE II.  
(In millions of yds.)

	1913-14	1918-19	1919-20	1920-21	1921-22	1922-23*
Indian mills production ..	1164·3	1450·7	1640·0	1580·8	1731·6	1725·2
Imported goods ..	3197·1	1122·0	1080·7	1509·7	1089·8	1577·3
Total production and imports ..	4361·4	2572·7	2720·7	3090·5	2821·4	3302·5
Exported—Indian ..	80·2	140·1	196·6	146·4	161·0	157·0
Foreign ..	62·1	114·2	88·6	61·0	73·6	74·5
Total exports ..	151·3	203·3	285·2	207·4	234·6	231·5
Balance available ..	4210·1	2309·4	2435·5	2883·1	2586·8	3071·0

\* The above years run from April to March in each case.

From the above table it will be noticed that between the years 1913-14 and 1921-22 Indian mills increased their production of piece goods by 567 million yards, which increase, however, was offset to the extent of 72 million yards by increased exports. Thus in 1921-22 there was a balance left for Indian consumption of 2,587 million yards, as contrasted with 4,210 million yards in 1913-14, a difference almost the same as that between the amounts of British piece goods taken by India in 1913 and 1923. We have added the 1922-23 column to Professor Daniels's table. This column shows that Indian consumption showed a remarkable increase in that year.

### COMPETITION IN INDIA.

The present consumption of piece goods in India is far below the pre-war consumption. So great is the difference that, if it were made up by imports and Lancashire supplied its pre-war proportion, a great step would be taken towards restoring the pre-war activity of the industry. Since 1913 Indian mills have increased their production by nearly 50 per cent., but it seems hardly likely that a similar increase of output will take place in the near future. It has been estimated by Mr. A. C. Conbrough that before 1914 domestic production in India was roughly equal to the output of the mills, but although since then it has received a great impetus from the Gandhi movement it is difficult to believe that it will gain extensively on modern methods of manufacture. Since 1913 Japan has considerably improved her position in the Indian market as against Lancashire, but when gross figures of trade volume are taken into account Japan's share is still very small, and consisting, as it does, of inferior goods, competes rather with Indian mills and with "Khaddar" than with Lancashire. On the whole, then, the prospect is not unfavourable that the United Kingdom will retain something like its pre-war proportion of the piece goods imports into India.

Whether India will soon demand its pre-war volume of imports depends on several considerations. The balance of trade is now definitely in India's favour, and the rate of exchange is comparatively stable. That legacy of the boom, excessive stocks, has depressed the market for the last three years. There is much political unrest, but from the economic point of view it seems that the dislocation of the war period has now been nearly overcome, and that recovery in Europe would soon allow the process to be completed. Consequently there is ground for hope that the imports of cotton goods will soon approach their pre-war level, assuming that the prices at which they are offered are within the purchasing power of the consumers.

### AGRICULTURAL PRICE FACTOR.

During the past three years the monsoons in India have been favourable, but it is a well-known fact that even with a good monsoon the amount which the great mass of the population of India can afford to spend on clothing is strictly limited. At present the consumption of cotton goods per head of the population is stated at about 13 yds., as contrasted with 16 to 18 yds. in pre-war years. The vast proportion of this population is engaged in agricultural pursuits, and for his products it is estimated that the Indian native is receiving only about 33 per cent. more than in 1914. The index number for Bombay in November, 1923, shows cereals at an average price only 25 per cent. higher than in July, 1914, while cotton manufactures are 135 per cent. higher. Until this premium on the pre-war price of cotton goods is brought nearer to the premium on the pre-war purchasing power of the population of India it seems unlikely that a demand for the pre-war volume of piece goods will be expressed by the Indian market. This statement is also applicable as regards the other greatly depressed markets for piece goods, which, as already mentioned, are constituted by countries of which large proportions of the populations are also engaged in agricultural pursuits.

On this question the following table is important, all of which, with the exception of the columns relating to yarn and cloth, which have been

calculated from official returns, is published in the *Board of Trade Journal*. The table summarizes the proportionate changes in the import and export trade of the United Kingdom since 1920 on the basis of 100 for the year 1913 :—

Period	Imports		Exports (U.K. Goods)		Yarn		Cloth		Wholesale market prices
	Average values	Volume of trade	Average values	Volume of trade	Average values	Volume of exports	Average values	Volume of exports	
1920	283.1	88.4	358.3	70.9	453	70	530	66	308
1921	190.3	74.3	268.8	49.8	280	69	386	43	198
1922	152.2	85.8	199.1	68.9	184	95	247	60	159
1923									
Jan.-March...	146.2	95.3	195.7	74.4					158
April-June...	148.3	94.8	188.4	77.6	203	60	245	59	160
July-Sept...	150.8	88.8	192.3	68.7					156
Oct.-Dec. . .	151.6	92.8	183.7	77.5					161

This table reveals several important facts. In the first place it will be noticed that, during the period which the table covers, the average values of our exports have been considerably in excess of the average values of our imports when both are calculated on the basis of 1913 values. This means, of course, that our exports are relatively dearer than in 1913, a fact which must have an important bearing upon the export of cotton textiles in view of the large place they occupy in our export trade. But even more important in this respect is the fact that throughout the period the average values of cloth (and of yarn, with the exception of the year 1922) have been much higher than the average values of our exports taken as a whole. Finally, seeing that more than three-fourths of our imports are foodstuffs and raw materials, while a still greater proportion of our exports are manufactured goods, the difference of values which the table shows is further evidence of the relatively decreased purchasing power of a given quantity of agricultural products, in the provision of which great masses of the people who consume British piece goods are engaged.

In view of this position the inevitable conclusion seems to be that if the pre-war demand for British cotton textiles is to be expressed, either the purchasing power of their consumers in the large markets will have to increase or the prices at which the goods are supplied will have to decrease, or both movements proceed together. As regards these movements, it is important to observe that during 1923 the table shows that while the average value of our exports has been decreasing the average value of our imports has been increasing. On the other hand, the average value of cloth has scarcely changed, while the average value of yarn has increased. While it is not unlikely that the average value of our imports may increase still further, it is hard to believe that it will proceed to such an extent as to remove the premium on cotton textiles. If this premium is to be removed it seems certain that the prices of cotton textiles will have to decline.

#### LOWER PRICES NEEDED.

What are the possibilities of such a decline, and to what extent is a decline necessary? As regards the latter point, a glance at the percentage

total amounts paid annually for piece goods since 1918, with 1913 as 100, reveals further interesting facts. These amounts are as follows :—

Year .. .	1913	1918	1919	1920	1921	1922	1923
Percentages..	100	142	183	324	141	146	141

Evidently what these figures show (apart from the boom period revealed in the figures for 1919 and 1920, which, if report speaks true, would have to be considerably reduced if they were replaced by actual receipts) is a remarkable uniformity in the total amounts paid for piece goods over a period of years. This uniformity suggests that at present there is something like a stationary annual amount available for the purchase of piece goods, and that this amount is about 42 per cent. in excess of the 1913 amount. In view of what has been said in the above paragraph of the trend of prices it may be that this excess will be increased somewhat in the near future. On the whole, is it likely that the excess will be increased to much more than 50 per cent. above the 1913 amount? Obviously this figure can be only an estimate which may be disproved, but it may be that it will not be far wrong for the next few years.

On the basis of this estimate it would appear, therefore, that there is a possibility of the pre-war volume of exports being restored if the average prices of piece goods can be reduced to, say, 50 to 60 per cent. above 1913 prices. The problem of this reduction is one for the supply side, and a detailed consideration of the position on this side will not be attempted in this paper. It is only necessary to draw attention to the outstanding facts that at present, compared with 1913, American cotton prices show an excess of more than 250 per cent.; that a large proportion of factories have greatly increased the capital on which a return is expected; that the number of working hours during which capital must yield its return is less (this reduction of working hours should also be taken into account in estimating the volume of trade necessary to pre-war activity); that rates of wages are higher by 86 per cent.; that, generally, the costs for processes ancillary to the main processes of spinning and weaving also show large increases.

Taking into account all the facts it would appear that, apart from the possibility of extraordinary changes, the prospect that the British cotton industry will regain its pre-war volume of trade at profitable prices in the near future is not too bright. Taking a longer view, there is no need for despondency. That the industry would be badly shaken in the world upheaval was inevitable, but as the settling-down process proceeds and as normal economic relationships are re-established throughout the world it is more than probable that the industry will regain the comparative position which it occupied in 1913. In the meantime those engaged in the industry have no lack of problems with which to concern themselves.



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## The New Workmen's Compensation Act in Great Britain.

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### DUTIES AND OBLIGATIONS OF EMPLOYERS.

By Mr. JOHN TAYLOR, Solicitor, Manchester (*Solicitor to the International Federation of Master Cotton Spinners' and Manufacturers' Associations*).

Reprinted from *THE MANCHESTER GUARDIAN COMMERCIAL* of the 29th November, 1923, with additional notes by the Author.

**T**HE Workmen's Compensation Act, 1923, which has just received the Royal assent and which came into force on January 1, 1924, deserves the most careful consideration of all employers of labour. The Act introduces many new features into the existing law, and grants to workpeople and their dependents largely increased benefits over the Act of 1906. The cost of workmen's compensation to employers of labour is approximately £12,500,000 per year, and it will be borne in mind that no part of this sum is contributed by the workpeople or the State, as is the case with regard to other social services, such as health and unemployment insurance. About 60 per cent. of the business of workmen's compensation is handled by mutual insurance companies and self-insurers, the remaining 40 per cent. being dealt with by proprietary companies.

It may be safely said that the new Act will increase the cost of production, but to what extent it is impossible to say. Some of the provisions are of a far-reaching character, and, until they have been in operation for a time even an approximate estimate of the cost under them would be mere guesswork. Many of the sections of the Act are worthy of detailed comment, but in an article of this nature it is only possible to call attention to a few of the more important ones.

#### BENEFITS TO DEPENDENTS.

At the present time, where death results from an injury, and there is total dependence, an employer is liable to pay three years' earnings or £150, whichever is the larger, but not exceeding £300. The minimum of £150 has been raised to £200. An entirely new principle has been introduced where a workman leaves a widow or other member of his family wholly or partially dependent upon his earnings, and in addition leaves one or more children under the age of 15 so dependent. In these circumstances, if the dependency is total, there is to be added to the compensation payable under the 1906 Act in respect of each such child a sum equal to 15 per cent. of the amount arrived at by multiplying the average weekly earnings of the workman, or where these are less than £1, then by multiplying £1, or where they exceed £2, then by multiplying £2, by the number of weeks between the death of the workman and the date when the child attains 15. If the dependency is partial, there is to be paid such proportion of the sum as would have been paid for total dependence as is agreed upon or, failing agreement, as is determined by arbitration to be reasonable.

The maximum amount payable to dependents is £600, and the effect of the section will be to materially increase the amount payable in most fatal cases. The following table illustrates the great benefits conferred:

**FATAL CASES. TOTAL DEPENDENCE.**  
**(Widow with Children.)**

Deceased Workman's Weekly Earnings	Deceased's Children	Amount of Benefit Payable	
		Under existing law	Under the new Act
40s. or over	Two children (one child 4 years and one child 6½ years) .. .. .. .. ..	300	600
35s.	Two children (one child 1 year and one child 4 years) .. .. .. .. ..	273	600
30s.	Three children (one child 1 year, one child 4 years and one child 5 years) .. .. .. .. ..	234	600
20s.	Three children (one child 1 year, one child 3 years and one child 4 years) .. .. .. .. ..	156	444

**TOTAL AND PARTIAL INCAPACITY.**

With regard to total and partial incapacity the compensation payable under the 1906 Act is materially increased. For total incapacity under the Act of 1906 the maximum compensation is £1. By the Workmen's Compensation War Addition Acts, which cease to have effect on the new Act coming into operation, except as to accidents happening prior thereto, 75 per cent. of the weekly payment is added during total incapacity. At the present time, therefore, a workman totally incapacitated, entitled to the maximum payment, receives 35s. per week.

The payments under the War Addition Acts were intended to be of a temporary nature only, to provide for the increased cost of living, and were to be for the period of the war and six months afterwards. The Acts have, however, been continued from time to time, and at the moment are still in being.

Under the new Act, 30s. is substituted for £1 as the maximum amount of the weekly payment under the Act of 1906. This increase in the compensation is substantial, and means a large addition to an employer's compensation bill as compared with that under the Act of 1906.

An entirely novel provision is set out in the new Act for a sum, in addition to the ordinary compensation, to be paid during total incapacity to workers whose earnings are less than 50s. per week. If the maximum weekly payment for total incapacity is less than 25s. the workman is entitled during such incapacity to a weekly addition equal to one-half the difference between such maximum weekly payment and 25s. or his average weekly earnings, whichever is the less.

The following short table compares the payments under the 1906 Act with those under the new Act, where there is total incapacity:

Weekly Earnings	WEEKLY COMPENSATION PAYABLE			
	Under 1906 Act	Per cent. of earnings	Under the new Act	Per cent. of earnings
5s. 0d.	20 0	25	30 0	37½
50 0	20 0	40	25 0	50
40 0	20 0	50	22 6	56½
25 0	12 6	50	18 9	73
(minor) 10 0	10 0	100	7 6	75

So far as partial incapacity is concerned, the new Act makes considerable alteration in the present law. It gives varying compensation, depending upon whether the weekly sum which would have been paid if the capacity had been total is below 25s. or not. If the compensation would be 25s. per week or over for total incapacity, the weekly payment during partial incapacity is one-half the difference between the average earnings of the workman before the accident and the average weekly amount he is earning or able to earn after the accident. If the compensation would be less than 25s. per week for total incapacity, the weekly payment in partial incapacity is to be a sum bearing the same proportion to the difference as the maximum weekly payment bears to the average earnings before the accident. The following illustrations show how this section of the Act will apply :

Pre-accident average	Payment for total incapacity	Present earnings	Difference between present and pre-accident earnings	Compensation for partial incapacity
80 0	30 0	20 0	60 0	30 0
60 0	30 0	20 0	40 0	20 0
30 0	20 0	20 0	10 0	6 8
	or 66½ p.c.			
40 0	22 6	20 0	20 0	11 3
	or 56⅓ p.c.			

#### WAITING PERIOD—SECTION FIVE.

This section of the Act deals with what is known as the waiting period, and makes a material alteration in the Act of 1906. The section provides that compensation shall be payable under the Act of 1906 if the injury disables the workman for more than three days from earning full wages at the work at which he was employed, but shall not be payable in respect of the first three days on which he is so disabled, unless the incapacity lasts for four weeks or upwards.

Under the Act of 1906, the position is as follows :

If incapacity lasts :

7 days or less . . . . . No compensation.

7 days, but less than 14 days . . Compensation for period following first 7 days.

14 days or more . . . . . Compensation from first day.

#### SECTION SEVEN.

From an employer's point of view, one of the most serious provisions in the new Act is contained in section 7. This stipulates that an accident which results in death or serious and permanent disablement shall be deemed to arise out of and in the course of a workman's employment notwithstanding that the workman was, at the time the accident happened, acting in contravention of any statutory or other regulation applicable to his employment or of any orders given by his employer, or that he was acting without instructions from his employer if the act was done by the workman for the purposes of and in connection with his employer's trade or business. It will be observed that the section takes away in many cases the defence of an employer that an accident did not arise out of and in the course of a workman's employment.

The section will be a costly one to employers, and it seems somewhat unfair that compensation should be paid to workmen who, knowing full

well the consequences, deliberately disobey instructions or break regulations made for their express benefit. Many employers say that it is almost useless for Acts of Parliament to be passed compelling them to provide means of safety if a workman can obtain compensation when he deliberately disregards them.

The employer is to some extent safeguarded by the concluding words of the section, that the act must be done by the workman for the purposes of and in connection with his employer's trade or business. These words will no doubt lead to a considerable amount of litigation, as it is only natural to assume that employers will contend that some of the hazards taken by workmen cannot fairly be for the purposes of and in connection with the trade or business.

#### NEW PROVISIONS.

The benefits of the new Act are extended to a considerable number of non-manual workers who did not come within the Act of 1906. By the latter Act the definition of a workman did not include any person employed otherwise than by way of manual labour whose remuneration exceeded £250. This figure is now raised to £350. It will therefore be seen that many clerks, assistant salesmen, and other non-manual workers will obtain benefits which they were not formerly entitled to.

Considerable alteration is made in the new Act with regard to notices of accident. There is to be kept constantly posted up and in good condition, in some conspicuous place where it may be conveniently read, a summary of the requirements of the Workmen's Compensation Acts, in a form prescribed by the Secretary of State, with regard to the giving of notices of accidents, the making of claims, and the procedure to be followed in the case of industrial diseases.

For facilitating the giving of notices of accident a book has to be kept in the prescribed form in which the particulars of accidents happening may be entered by the injured workman, or some other person acting on his behalf, and an entry in the book, if made as soon as practicable after the happening of the accident, is to be sufficient notice of it. The book is to be kept at such place as to be readily accessible at all reasonable times to any injured workman. Other provisions favourable to the workman appear with regard to notice of accident. Failure to give the notice will in future seldom be a bar to the maintenance of proceedings.

An interesting provision in the new Act is one giving power to either employer or workman, at any time after six months from the accident, to review a weekly payment if it is claimed that, had the workman remained uninjured and continued in the same class of employment, the average earnings of the workman during the twelve months previous to review would, as a result of fluctuations in rates of remuneration, have been greater or less by more than 20 per cent. than the average weekly earnings of the workman during the twelve months before the accident or previous review, if the payment was then varied. Where the claim is proved the weekly payment is to be altered so as to make it such as it would have been if the rates of remuneration obtaining during the twelve months previous to the review had obtained during the twelve months previous to the accident.

Considerable alteration is made in the law with regard to referring cases to the Medical Referee. At the present time a reference may be made of a matter to the Medical Referee by the Registrar, on the appli-

cation of both parties. Under the new Act, the Registrar has power to refer a medical question to a Medical Referee, on the application of one of the parties only, subject to appeal to the judge, and if the application is made by one party only, the Registrar or, on appeal, the Judge, if he is of opinion that, owing to the exceptional difficulty of the case, or for any other sufficient reason, the matter ought to be settled, in default of agreement, by arbitration, shall refuse to allow the reference.

A further important alteration as to medical referees is that under the new Act a Judge may summon one to sit with him as Assessor, and is bound to have a Medical Referee sitting with him as Assessor, if any party so requires, and gives security for the fee.

The powers of the Registrar with regard to the registration of lump sum agreements are very much extended. Both he and the Judge have power to require either party to the agreement to furnish orally or in writing such information as may be deemed necessary, or to require the attendance of any of the parties before him. If the information as to the workman's condition appears to the Registrar or Judge to be insufficient or conflicting, he has power to require a report to be obtained from a Medical Referee. If it appears from the report of the Medical Referee that the prospects of the workman's recovery from incapacity cannot as yet be approximately ascertained, the Registrar or, on appeal, the Judge may refuse to record the memorandum. A memorandum must also now disclose the amount payable to the workman's solicitor for costs. If the Registrar thinks the amount is excessive, he may direct that the bill of costs be taxed and if the costs are reduced on taxation, the amount of the reduction shall either be applied and dealt with for the benefit of the workman, or his dependents, or be paid to the employer or otherwise dealt with as the Judge may direct.

Under the new Act the workman's Approved Society or Committee may send to the Registrar objections to the registration of a lump sum settlement, and if the attendance of the parties is required by the Registrar or the Judge, the Approved Society or Committee is entitled to appear.

Another entirely new provision is one which stipulates that where a person against whom a claim for compensation is made disputes his liability, but makes an agreement whereby, in consideration of the payment of a lump sum, the claim for compensation purports to be precluded, the agreement is to be sent for registration to the County Court. There is, however, a proviso that in determining whether or not the lump sum agreed to be paid is adequate the Registrar or the Judge, if the matter is referred to him, is to have regard to the question of whether or not liability to pay compensation is doubtful.

A further provision which may necessitate a good deal of clerical work, but which appears to be quite fair, is one compelling an employer, on the request of an injured workman to furnish in writing a list of the earnings of the workman, upon which the average earnings may be calculated for determining the amount of compensation.

Section 14 of the Act makes material alteration in the present law, and severely restricts the employer's right to end or diminish a weekly payment. At the present time, if an employer is of opinion a workman has recovered, or partly recovered, from an injury, he usually stops or reduces the compensation, and applies to the Court to review. Under the new Act an employer is only entitled to end or reduce the compensation where a workman in receipt of a weekly payment for total incapacity

has actually returned to work, or where the weekly earnings of a workman in receipt of compensation in respect of partial incapacity have actually been increased, or where medical examinations have taken place, and specific notices have been given, and in certain circumstances the matter has been referred to the Medical Referee. The Labour Party made strong complaints in Committee of the unfairness of some employers and insurance companies in stopping or reducing compensation, and the section goes a long way to meet their objections. It will, however, mean in many cases an increased expense to employers.

The provisions of section 23 should be carefully observed. The section deals with the position when outdoor relief has been granted to a person pending the settlement of his claim to compensation. A notice has to be given of the relief provided by the Authority, and a certificate thereof. The employer must then, if the conditions of the section apply, repay to the Authority up to the amount which he is liable to pay as compensation, less such part as has already been paid at the time he receives the notice. There is a proviso that if the employer serves upon the Authority by which the notice has been given, a notice that he intends to pay or has paid compensation, he is not under any obligation to repay in respect of any relief provided *after* the date of the payment of the compensation, or *after* the notice is received by the Authority, whichever is the later. Every employer should at once send on to his Insurers any notices received from Poor Law Authorities.

Section 28 of the new Act amends section 4 of the Notice of Accidents Act, 1906. The material alteration (so far as cotton mills are concerned) is that written notice has to be given to the Factory Inspector where an accident either causes loss of life to a person employed, or disables such person for more than three days, instead of seven days as provided by the Notice of Accidents Act, 1906.

Another section of the Act, which would have been more in place as an amendment to the Factory Acts, stipulates that in every factory there shall be provided and maintained, so as to be readily accessible, a first-aid box or cupboard of the prescribed standard for every 150, or portion of 150, persons employed. Nothing is to be kept in the first-aid box or cupboard except appliances or requisites for first aid. Each first-aid box or cupboard is to be placed under the charge of a responsible person, who must always be readily available during working hours, and a notice has to be affixed in every workroom stating the name of the person in charge of the first-aid box or cupboard provided in respect of that room. If an ambulance-room is provided at the factory, and such arrangements are made as to ensure the immediate treatment there of all injuries occurring, the Chief Inspector may, by certificate, exempt the factory from the requirements of the section to such extent and subject to such conditions as he may specify in the certificate.

There are many other provisions which might be dealt with, but sufficient information is set out above to indicate some of the more important alterations which have been made in the present law. Workmen and their dependents will obtain largely increased benefits by the new Act, and the cost of these will fall entirely upon employers.

# The Remarkable Recovery of Japan's Cotton Textile Industry since the Earthquake

*Republished from the March 3, 1924, issue of "Commerce Reports."*

*Prepared by the Far Eastern Division, United States Department of Commerce.*

THE recovery of the cotton yarn and the cotton textile industries—the backbone of Japan's industrial activity—following the earthquake disaster is remarkable, in view of the fact that they had lost close on 15 per cent. of their total working machinery. In spite of these losses the output of cotton yarn and textiles during 1923 was approximately the same as it was in 1922, when production was the greatest in the history of the industry.

Cotton yarn production during 1922 was well maintained—in spite of the disaster and the adverse condition of the export market throughout the year—due to a brisk home demand resulting from good wages and little unemployment. The output during September, following the earthquake, declined sharply, but during the last three months of the year the production was up to the pre-earthquake figures. The total production for 1923 aggregated 2,155,954 bales, a decline of only 69,320 bales from the record production of 1922.

Several factors made it possible for Japan's cotton yarn industry to maintain its output despite the loss of 15 per cent. of its equipment. Due to over-expansion, the industry prior to the disaster had a surplus spindlage, amounting to about 15 per cent. of the total, which acted as a drag upon the industry. The destruction of about 680,000 spindles just about wiped out this surplus, and mills that had been working at 80 to 85 per cent. capacity immediately speeded up to full time. The output was soon back to almost normal, and the industry itself placed in a better position.

The following table indicates Japan's cotton yarn production for each month during 1923, as compared with that of 1922:—

JAPAN'S COTTON YARN PRODUCTION

MONTHS	1922		1923	
	BALES	BALES	BALES	BALES
January .. .. .. .. ..	168,098	..	174,563	
February .. .. .. .. ..	174,389	..	182,988	
March .. .. .. .. ..	184,332	..	189,009	
April .. .. .. .. ..	190,547	..	195,790	
May .. .. .. .. ..	194,060	..	194,404	
June .. .. .. .. ..	190,000	..	198,000	
July .. .. .. .. ..	182,000	..	182,200	
August .. .. .. .. ..	179,151	..	174,000	
September .. .. .. .. ..	179,159	..	146,000	
October .. .. .. .. ..	193,326	..	172,000	
November .. .. .. .. ..	200,454	..	177,000	
December .. .. .. .. ..	189,758	..	175,000	
Totals .. .. .. .. ..	2,225,274	..	2,155,954	

Practically all of Japan's cotton yarn and textiles are produced for local consumption, less than 10 per cent. being exported. A decrease in the amount exported, however, is looked upon with concern, since healthy conditions in the industry depend to a large degree upon this marginal production. The Chinese boycott, which was called off as a result of the earthquake, was causing considerable concern among the yarn and cloth manufacturers during the first half of 1923, and its collapse was gratifying. China normally takes more than 50 per cent. of Japan's total export of these commodities, or about 5 per cent. of the total production.

Although Japanese manufacturers have not yet reached the point where they can successfully compete with certain other nations in the manufacture of the finer grades of cotton yarn and cloth, in the coarser grades which are in demand in the Oriental markets they have the advantage. Their exports of cotton yarn and cloth are therefore more or less confined to China and other parts of the Orient, India and Africa.

Cotton yarn exports decreased during the first half of 1923, and further declines followed the earthquake, on account of the destruction of stocks in warehouses and mills and the heavy demands for replacements. The local demand has been so great during the last five months that a considerable quantity has been imported from China. This movement, however, is expected to subside as soon as normal conditions prevail in Japan's home market. Japan's total exports of cotton yarn in 1923 amounted to 78,439,980 yen, as compared with 114,723,331 yen during 1922.

The value, by months, of Japan's exports of cotton yarn in 1922 and 1923 follows:—

#### VALUE OF JAPANESE EXPORTS OF COTTON YARN

MONTHS	1922			1923		
		yen		yen		yen
January ..	..	..	..	6,458,100	..	7,198,571
February ..	..	..	..	6,687,746	..	5,395,032
March ..	..	..	..	11,755,331	..	9,919,206
April ..	..	..	..	13,370,415	..	10,064,734
May ..	..	..	..	14,170,280	..	7,523,602
June ..	..	..	..	18,932,736	..	1,383,735
July ..	..	..	..	5,656,734	..	5,000,000
August ..	..	..	..	4,592,837	..	6,680,000
September ..	..	..	..	6,887,876	..	6,971,000
October ..	..	..	..	10,688,671	..	1,196,000
November ..	..	..	..	9,196,000	..	6,517,000
December ..	..	..	..	11,376,602	..	4,591,000
Total... ..	..	..	..	<u>114,723,331</u>	..	<u>78,439,980</u>

Exports of cotton cloth, however, registered a different reaction. Fearing a rise in the price of textiles as a result of the destruction of looms during the disaster, Japan's foreign customers immediately placed heavy orders. As a result, exports during the last four months of 1923 showed substantial increases, and stocks, which were rather heavy on the eve of the disaster, have been cleared out at a handsome profit. Total exports of cotton cloth during the whole year were valued at 234,400,000 yen, a small increase over the value of 222,052,000 yen in 1922.

The outlook of Japan's cotton yarn and textile industries during 1924 is relatively good. Reconstruction activities are expected to supply steady

employment for many workers, and plentiful money will assure a brisk domestic demand. Since the boycott in China has collapsed, it is probable that demands from that section will increase. Only one danger threatens the immediate future of these industries—another over-expansion as a result of a prosperous year.

## Cotton Growing Costs in U.S.A.

*By E. J. BODMAN, Vice-President Union Trust Co.,  
Little Rock, Arkansas.*

The Union Trust Co. of Little Rock, of which the writer is an officer, operates, as trustee under will, several large plantations growing several thousands of acres of cotton. The operating organization has been carefully picked after years of experience. The general manager in charge of all is a highly trained business executive, with long years of agricultural training. By comparison the methods practised are modern and practical. The records of costs such as any well-managed business keeps are kept on these plantations. The cost of production is lower and the yield per acre greater than the average land of this character in this territory. These plantations are operated under what is known as the share crop system.

### SHARE CROP SYSTEM.

Under this system the landlord furnishes to the negro share cropper the land, the mules and feed for same, the implements, the planting seed, garden space, teams, his wood, and a home to live in.

The owner furnishes the land, keeps up the fences and ditches, employs a general manager or managers, pays all taxes, insurance, and advances the living expenses of the share cropper and his family, this advance to be paid back from crop returns.

The share cropper furnishes his labour, but is charged with the advance of supplies and one-half of the cost of fertilizer and calcium arsenate applied. Each gets one-half of the cotton and cotton seed produced.

### COTTON ACRE COSTS.

The cost of producing an acre of cotton for 1924 on these plantations, estimated from the records of the past three years, has been made to fit the general conditions brought about by boll-weevil infestation and commodity costs for 1924, the estimate as given endeavouring to show the cost of producing, gathering and preparing for market the 1924 cotton crop :—

PRODUCING, GATHERING AND GINNING COTTON.	COST PER ACRE
	\$      \$
50 lbs. planting seed .. .. .. .. ..	1.88
4,015 lbs. of grain per head per work animal .. .. .. ..	3.95
4,880 lbs. of hay per head per work animal .. .. .. ..	1.95
18 lbs. of salt per head per work animal .. .. .. ..	0.01
5,475 lbs. of grain and 5,475 lbs. of hay for saddle horse .. ..	0.14
	7.93

						COST PER ACRE
						\$      \$
Upkeep of tools and implements..	..	..	..	..	..	1.09
Harness upkeep ..	..	..	..	..	..	0.18
Upkeep of ditches and drainage ..	..	..	..	..	..	0.24
Upkeep of pumps ..	..	..	..	..	..	0.14
Fence repairs ..	..	..	..	..	..	0.16
Building repairs ..	..	..	..	..	..	0.51
Ginning and wrapping (landlord's half)	..	..	..	..	..	1.23
						<u>3.50</u>
Team expense (this item covers hostler's wages, veterinary service and other incidental expenses necessary in taking care of work animals) ..	..	..	..	..	..	0.75
Live stock deaths (work animals)	..	..	..	..	..	0.25
						<u>1.00</u>
Fertilizer ..	..	..	..	..	..	6.75
Calcium arsenate (35 lbs.) ..	..	..	..	..	..	5.25
Carbide light on spraying machines ..	..	..	..	..	..	0.15
						<u>12.15</u>
Executive expense ..	..	..	..	..	..	2.78
Office expense ..	..	..	..	..	..	0.57
						<u>3.85</u>
Insurance ..	..	..	..	..	..	0.14
Taxes ..	..	..	..	..	..	1.82
						<u>1.96</u>
Supplies to tenants ..	..	..	..	..	..	14.00
Average losses per year on advances to tenants ..	..	..	..	..	..	0.97
Interest on real estate investment (cultivated land at \$100 per acre) ..	..	..	..	..	..	7.00
Interest on investment in work animals and equipment ..	..	..	..	..	..	0.85
						<u>7.85</u>
Allowance for depreciation on buildings, implements, live stock investment ..	..	..	..	..	..	8.50
						<u>56.21</u>

#### VARIATIONS.

In arriving at the above costs the corn is figured at \$1 per bushel, the oats at 55 cents per bushel and the hay at \$16 per ton. There are fluctuations that might occur to change the costs, and, in addition to the market price of commodities, unforeseen conditions might arise such as excessive rainfall or drought and other unseasonable things that do not occur in a normal year. A season like we had last year would probably require twice and possibly three times the 50 lbs. of cotton seed for planting, for most plantations in this section re-planted at least three times due to cold and wet spring.

#### FERTILIZER COSTS.

The question no doubt will be asked : " Why use fertilizer on delta lands ? " To begin with, much of the delta lands are the old plantations, and the old slothful system of farming has been in practice. This has taken everything out of the soil and put nothing back. It has been " cottoned " to death. Besides, even on strong lands it has been found advantageous to use fertilizer to a degree, increasing the yield under boll-weevil conditions. Fertilizer hastens the growth and maturity of the plant, bringing the crop to maturity some two weeks earlier than without it. This is a big margin in the fight with the boll-weevil. On the plantations referred to above, fertilizer is used only on some of the acres. It averages \$6.75 per acre for the total cotton acreage planted.

The estimates referred to above have been worked out with actual results as a base. The average yield per acre on these plantations for the past three years has been 183 lbs. of lint cotton and 370 lbs. of cotton seed. 1921 and 1922 were high-yielding years above the normal for this section. There was severe leaf worm damage as well as boll-weevil. There was excess rainfall, followed by drought, and the average yield of lint cotton per acre was about 90 lbs. Many plantations in this section last year did not produce an average of better than one bale to 10 to 12 acres.

#### COST PER LB.

Taking the above total of costs and accepting \$56.21 per acre as the cost figure for 1924, and the past three years' average yield of 183 lbs. of lint cotton and 370 lbs. of seed as the return, not taking into consideration the labour value in excess of advances by landlord, we make the following tabulation, showing the landlord's cost per lb. for producing the 1924 crop :—

	\$	\$
Total outlay for 1924 per acre .. .. .. ..	56.21	
Less return from tenants' supplies .. .. .. ..	14.00	
Less return from half cost of fertilizer and poison .. .. .. ..	6.07	
	<hr/>	20.07
Net outlay of landlord per acre .. .. .. ..	36.14	
Less value of half of 370 lbs. of seed at \$50 per ton .. .. .. ..	4.64	
Net cost of lint per one acre for landlord .. .. .. ..	31.50	
	<hr/>	

The landlord receives one-half of 183 lbs. of lint or  $91\frac{1}{2}$  lbs., which, divided into \$31.50 per acre, costs him approximately  $30\frac{1}{2}$  cents to produce.

Let us now consider a few figures on cotton growing from the tenant's standpoint. He and his wife have worked a year to make and harvest a crop of cotton. Just assuming that he gets the cost of producing the cotton as his reward (and the average price of cotton on the Little Rock market during October, November and December of the three years has been much less than this), his average income would be as follows :—

	\$	\$
Half of 183 lbs. of lint cotton, $91\frac{1}{2}$ at $30\frac{1}{2}$ .. .. .. ..	27.90	
Half of 370 lbs. of seed, 183 lbs. at \$50 per ton .. .. .. ..	4.62	
	<hr/>	
Total .. .. .. ..	32.52	
Less half cost of fertilizer and poison .. .. .. ..	6.07	
Less half ginning cost .. .. .. ..	1.28	
	<hr/>	7.30
Gross returns to tenant per acre .. .. .. ..	25.22	
Less bill for supplies furnished by landlord .. .. .. ..	14.00	
	<hr/>	
Net per acre .. .. .. ..	11.22	
	<hr/>	

From this he must live during the winter and, between harvesting one crop and starting another, buy clothing for himself and family. There is little left for pleasure and none for luxuries. Here, to my mind, is the gist of the whole negro migration. The cotton field is failing to supply him with what he can get elsewhere.—(*Commerce and Finance*, 27th February, 1924.)

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## AN INQUIRY INTO COST OF PRODUCTION.

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The U.S. Department of Agriculture has concluded an investigation of the distribution between growers, manufacturers and merchants of the cost of producing various qualities of cotton piece goods. The following summary of the result has been compiled by *Commerce and Finance*. The method of procedure has been to take a dollar's worth of sheeting, gingham, calico or percale and represent each factor's share in cents. The second item in the list of costs is the difference between grower's price and the price on the New York Cotton Exchange. In the case of calico manufacturing costs are split between the weaving and the bleaching and printing processes.

		Sheeting	Gingham	Calico	Percale
Grower .. .	..	19·8	15·1	20·4	20·1
Handling and assembling ..	..	8·1	2·4	2·1	2·0
Transport .. .	..	1·3	1·0	1·4	1·3
Manufacture .. .	..	39·3	43·4	{ 17·7 28·4 }	41·6
Jobber and retailer .. .	..	36·5	28·1	29·6	35·0
Total (cents) .. .	..	100	100	100	100

(Extracted from *Manchester Guardian Commercial*, 28th February, 1924.)

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## “OUTSIDE GROWTHS” AND THE LIVERPOOL FUTURES CONTRACT.

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In view of the rapid increase in the consumption of cotton other than American, and in the production of suitable cotton within the British Empire, it has been felt for some time that these growths ought to be tenderable against the Liverpool futures contract. With this end in view conferences have taken place between the Liverpool Cotton Association, the Manchester Cotton Association and the Federation of Master Cotton Spinners’ Associations. A Joint Committee has considered the question of either altering the present form of American contract or of drawing up a new contract form upon which other growths can be tendered. Two reports were presented, No. 1 Report suggesting the addition of certain growths to the present American contract, and No. 2 Report suggesting a third form of contract. Opinion has been divided between the two reports, and on March 3 the following resolution was adopted by the Liverpool Cotton Association :

“That this meeting, while confirming the decision that additional growths be not tenderable on the American futures contract, recognizes the desirability of providing a separate contract based on middling American cotton (universal standard) on which American and certain outside growths may be tendered, and decides that it be an instruction to the directors that a contract embodying this principle be drawn up for further consideration by the members.”

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# INTERNATIONAL COTTON STATISTICS

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## Mill Consumption and Mill Stocks.

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Once more we wish to emphasize the fact that these figures show the total spindles, cotton mill consumption and stock, calculated on the basis of returns received from over 90 per cent. of the total number of spindles estimated to be in existence in the world.

Again, in this issue of the International Cotton Statistics no doubling or waste spindles have been included.

As no returns have been received from Germany the figures for the previous half-yearly census have been used to complete the tables, but it is reported that the consumption in that country has increased.

THE CONSUMPTION TABLE (p. 344) shows that the world's consumption of American cotton during the six months ended 31st January, 1924, has once more been appreciably less than during the previous half-year, on this occasion to the amount of 272,000 bales, as against a reduction last half-year of 614,000 bales. We would point out, however, that this reduction is caused by U.S.A. and Japan, whereas Europe has increased her demands for American cotton.

*Great Britain* has increased her consumption of American cotton by only 22,000 bales, but note should be taken of the fact that at the same time she has increased her total consumption by 113,000 bales.

*France*, in direct contrast to the last census, is the only European country of importance to reduce her total cotton consumption during the half-year under review. *Holland* has consumed less on account of the lock-out in that country.

In *Asia*, *India* has used over 100,000 bales more, whereas *Japan*, owing to the destruction caused by the earthquake, and *China* have consumed less.

*U.S.A.* The Bureau of the Census, Washington, D.C., supplies these figures specially for us ; they are given in actual running bales and exclusive of linters.

It is a very noteworthy fact that U.S.A. has decreased her consumption by nearly 300,000 bales.

THE STOCK TABLE (p. 346 indicates an increase of 667,000 bales of American cotton as against the previous half-year, but a reduction of

444,000 as compared with 31st January, 1923. Indian cotton stocks show a decrease of 584,000 against last July. Egyptian is unchanged at 220,000, and sundries show an increase. The world's cotton mill stock on 31st January last was 4,088,000 bales, in comparison with 3,932,000 on 31st July, 1923, and 4,851,000 on 31st January, 1923.

THE WORLD'S SPINDLE TABLE shows no important changes, except that China has now increased her spindleage by 700,000 to 3,380,000, but only 42,000 are under construction at present as against 700,000 last July. It is obvious that Japan is replacing some of her spindles destroyed by the earthquake, as 608,000 are now under construction. Note should be taken of the increase of over 1,000,000-spindles running on Egyptian cotton in England.

THE SHORT-TIME TABLE (p. 350) reveals the fact that Great Britain, France, Italy, Czechoslovakia, Belgium, Switzerland, Poland, Finland, Japan, Canada and Mexico have all worked less short time than during the previous six months. Spain, Holland, Sweden and China are among those who have increased their stoppages.

The figures for Brazil have been estimated from information received from the Department of Agriculture, Commerce and Industry, Rio de Janeiro. They are subject to correction at a later date.

## Relevés Statistiques du Coton pour le monde entier

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### CONSOMMATION ET STOCKS DES FILATURES

Qu'il nous soit permis d'insister une fois de plus sur ce fait que ces chiffres représentent le nombre total de broches, la consommation des filatures de coton et les stocks calculés d'après les données fournis par 90 pour cent du total des broches que l'on suppose exister dans le monde entier.

De plus, les présents relevés statistiques internationaux du Coton ne comprennent pas les broches de retardage ni de déchets.

Comme aucun relevé n'est parvenu d'Allemagne les chiffres du précédent recensement semestriel ont été utilisés en vue de compléter les tableaux mais, selon des rapports reçus, la consommation de ce pays aurait augmenté.

LE TABLEAU DE CONSOMMATION (p. 344) montre que la consommation mondiale de coton américain pendant le semestre se terminant le 31 janvier 1924 a été sensiblement inférieure à celle du semestre précédent ; à cette occasion le nombre de 272,000 balles s'oppose à une réduction de 614,000

balles des six derniers mois. Nous tenons, néanmoins, à remarquer que cette réduction est causée par les Etats-Unis et le Japon, tandis que l'Europe a augmenté ses demandes de coton américain.

*La Grande-Bretagne* n'a augmenté sa consommation de coton américain que de 22,000 balles ; il est toutefois à noter que sa consommation totale de coton indique une augmentation de 113,000 balles.

*La France*, contrairement à ce qu'indiquait le dernier recensement, est le seul pays important qui ait réduit sa consommation de coton au cours du semestre considéré.

*La Hollande* a fait une consommation moindre par suite des lock-outs qui se sont produits dans le pays.

En *Asie*, les *Indes* ont utilisé un surplus dépassant 100,000 balles, tandis que le *Japon*, par suite des ravages causés par le tremblement de terre, ainsi que la *Chine*, ont consommé moins.

*Etats-Unis*. Le Bureau de Statistique de Washington, D.C., a compilé spécialement des chiffres pour notre usage ; ils se rapportent à des balles effectives courantes, non compris les déchets de fibre.

Il convient tout particulièrement de remarquer que les Etats-Unis ont réduit leur consommation de près de 300,000 balles.

LE TABLEAU DES STOCKS (p. 346) accuse une augmentation de 667,000 balles de coton américain en comparaison des chiffres du semestre précédent, mais une réduction de 444,000 en comparaison de la même période se terminant le 31 janvier 1923. Les stocks de coton des Indes accusent une diminution de 584,000 en comparaison de juillet dernier. L'Egyptien reste stationnaire à 220,000 et les provenances diverses subissent une augmentation. Les stocks mondiaux de coton pour filatures s'élevaient le 31 janvier dernier à 4,078,000 balles, en comparaison de 3,932,000 le 31 juillet 1923 et 4,851,000 le 31 janvier 1923.

LE TABLEAU DES BROCHES MONDIALES n'accuse aucun changement important à part ce fait que la Chine a augmenté son total de 700,000, c'est-à-dire a atteint le chiffre de 3,380,000 ; toutefois 42,000 broches seulement sont en voie de construction en comparaison de 700,000 en juillet dernier. Il est évident que le Japon est en train de remplacer un certain nombre de ses broches détruites par le tremblement de terre, car 608,000 sont en voie de construction. Il est à remarquer qu'une augmentation de plus de 1,000,000 de broches travaillant le coton égyptien s'est produite en Angleterre.

LE TABLEAU DES HEURES RÉDUITES DE TRAVAIL (p. 350) met en évidence ce fait que la Grande-Bretagne, la France, l'Italie, la Czechoslovacie, la Belgique, la Suisse, la Pologne, la Finlande, le Japon, le Canada et le Mexique ont réduit leurs heures de travail dans une mesure moindre que celle du semestre précédent. L'Espagne, la Hollande, la Suède et la

Chine figurent parmi les pays qui ont augmenté leurs suspensions de travail.

Les chiffres relatifs au Brésil ont été établis en utilisant les renseignements fournis par le Ministère de l'Agriculture, du Commerce et de l'Industrie, Rio de Janeiro, et pourraient subir des corrections à une date ultérieure.

## Baumwollverbrauch und -Vorräte in den Spinnereien.

### BEMERKUNGEN.

Wiederholt müssen wir die Tatsache hervorheben, dass die Ziffern die Totalspindelanzahl geben und dass Verbrauch und Vorräte in den Spinnereien auf Grund der erhaltenen Fragebogen berechnet sind ; diese betragen über 90% der abgeschätzten Spindelanzahl der Welt.

Ferner, in der vorliegenden Internationalen Baumwoll-Statistik sind weder Dublier- noch Kammwollspindeln einbegriffen.

Da uns von Deutschland keine Antworten zugekommen sind, wurden die Ziffern des vorhergehenden Halbjahres benutzt, um die Tabellen zu vervollständigen ; es wird jedoch von dort berichtet, dass der Baumwollverbrauch zugenommen hat.

Tabelle BAUMWOLLVERBRAUCH (Seite 344) zeigt, dass der Verbrauch der ganzen Welt von amerikanischer Baumwolle während der am 31. Januar 1924 beendigten sechs Monate wieder beträchtlich weniger gewesen ist als während des vorhergehenden Halbjahres, und zwar diesmal um 272,000 Ballen gegen eine Verminderung im letzten Halbjahr von 614,000 Ballen. Wir müssen aber darauf hinweisen, dass diese Abnahme nur den Vereinigten Staaten und Japan zuzuschreiben ist, während andererseits in Europa die Bedürfnisse an amerikanischer Baumwolle zugenommen haben.

GROSSBRITANNIEN hat seinen Verbrauch von amerikanischer Baumwolle um nur 22,000 Ballen erhöht, man beachte aber, dass sein Totalverbrauch in derselben Periode um 113,000 Ballen gestiegen ist.

FRANKREICH, entgegen der letzten Umfrage, ist das einzige Land von Bedeutung in Europa dessen Totalverbrauch an Baumwolle während der Berichtsperiode abgenommen hat.

HOLLAND hat wegen des dortigen Arbeiterausschlusses weniger Baumwolle verbraucht.

In ASIEN hat INDIEN über 100,000 Ballen mehr konsumiert, wohingegen JAPAN, wegen der durch das Erdbeben verursachten Verheerung, und CHINA, weniger verwendet haben.

VEREINIGTE STAATEN. Das Census-Büro in Washington, D.C., liefert diese Ziffern eigens für uns ; sie sind in wirklich laufenden Ballen gegeben und ausschliesslich von Linters.

Es ist eine bemerkenswerte Tatsache, dass in den Vereinigten Staaten der Baumwollverbrauch um nahezu 300,000 Ballen abgenommen hat.

Die Tabelle BAUMWOLLVORRÄTE (Seite 344) zeigt eine Zunahme von 667,000 Ballen amerikanischer Baumwolle gegen das vorhergehende Halbjahr, aber eine Abnahme von 444,000 Ballen, mit den Ziffern vom 31. Januar 1923 verglichen. Vorräte von indischer Baumwolle erweisen eine Abnahme von 584,000 Ballen gegen jene vom letzten Juli. Aegyptische Baumwolle bleibt unverändert, nämlich 220,000 Ballen, und „Diverse“ zeigen eine Zunahme. Der Totalvorrat der Welt am 31. Januar 1924 belief sich auf 4,088,000 Ballen, im Vergleich mit 3,932,000 Ballen am 31. Juli 1923 und 4,851,000 am 31. Januar 1923.

Die TABELLE der TOTALSPINDELANZAHL der Welt zeigt keine namenswerte Änderungen, ausgenommen dass China seine Spindelanzahl um 700,000 vermehrt hat und nun 3,380,000 beträgt, aber nur 42,000 davon werden gegenwärtig aufgestellt, gegen 700,000 letzten Juli. Es versteht sich natürlich von selbst, dass Japan eine Anzahl seiner durch das Erdbeben zerstörten Spindeln ersetzt und 608,000 sind im Aufbau begriffen. Man beachte weiters, dass in England ein Zuwachs von mehr als 1,000,000 Spindeln, welche ägyptische Baumwolle spinnen, stattgefunden hat.

Die TABELLE über ARBEITSEINSCHRÄNKUNG (Seite 350) erweist die Tatsache, dass Grossbritannien, Frankreich, Italien, die Czechoslowakei, Belgien, die Schweiz, Polen, Finland, Japan, Kanada und Mexiko die Arbeit weniger eingeschränkt haben als im vorhergehenden Halbjahr. Hingegen sind Spanien, Holland, Schweden und China unter jenen Ländern, die ihren Spindelstillstand weiterstreckt haben.

Die für BRASILIEN angegebenen Ziffern sind aus Mitteilungen abgeschätzt worden, die uns von dem Departement für Landwirtschaft, Handel und Gewerbe in Rio de Janeiro zugekommen sind. Diese unterliegen späterer Richtigstellung.



**Calculated TOTAL WORLD'S COTTON MILL CON-**  
**with previous figures for comparison, on basis of Spinners'**

COUNTRIES	IN THOUSANDS OF ACTUAL BALES (regardless of weight)							
	AMERICAN				EAST INDIAN			
	Half year ending				Half year ending			
	Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922
EUROPE :—								
(1) Great Britain ..	845	823	1,006	1,108	97	68	89	27
(2) France ..	858	390	400	450	106	96	74	78
(3) Germany* ..	292	202	448	409	87	87	126	110
(4) Russia ..	81	61	61	24	—	—	—	—
(5) Italy ..	281	274	327	309	186	131	108	99
(6) Czecho-Slovakia ..	120	87	91	142	61	41	20	28
(7) Spain ..	118	94	155	180	37	28	37	30
(8) Belgium ..	61	62	67	60	81	68	59	49
(9) Switzerland ..	25	26	31	29	5	4	8	8
(10) Poland ..	67	74	98	88	18	24	20	19
(11) Austria ..	25	27	84	41	30	28	18	12
(12) Holland ..	27	38	48	48	9	13	12	12
(13) Sweden ..	40	36	42	37	2	2	2	1
(14) Portugal ..	22	25	21	21	—	—	—	—
(15) Finland ..	16	16	16	15	—	—	—	—
(16) Denmark ..	10	11	15	8	1	1	—	—
(17) Norway ..	3	3	4	4	—	—	—	—
Europe Total ..	2,391	2,389	2,944	3,097	670	586	518	468
ASIA :—								
(1) India ..	8	5	21	19	1,121	1,015	1,182	1,102
(2) Japan ..	282	380	393	431	822	877	845	785
(3) China ..	31	37	78	95	140	186	171	214
Asia Total ..	316	372	487	545	2,083	2,078	2,198	2,101
AMERICA :—								
(1) U.S.A. ..	2,932	3,108	3,125	2,760	12	13	8	5
(2) Canada ..	80	83	92	88	—	—	—	—
(3) Mexico ..	10	9	11	11	—	—	—	—
(4) Brazil ..	—	—	—	—	—	—	—	—
America Total ..	3,022	3,290	3,228	2,854	12	13	8	5
Sundries ..	3	3	3	10	5	1	—	—
HALF YEAR TOTALS ..	5,732	6,004	6,662	6,506	2,770	2,078	2,724	2,569
Grand Total ..	..	12,666		..	..	5,402		..
Cotton Season ..	..	1923		..	..	1923		..

\* No returns received from Germany; the figures in italics are previous half-year's figures.

**SUMPTION for the Half-year ending 31st January, 1924,  
returns made to the International Cotton Federation\***

IN THOUSANDS OF ACTUAL BALES  
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL				
Half year ending				Half year ending				Half year ending				
Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922	
235	209	184	168	200	164	187	125	1,377	1,264	1,506	1,488	(1)
46	47	46	45	38	95	31	28	543	628	551	601	(2)
18	18	21	20	10	10	12	10	407	407	607	609	(3)
19	1	1	4	194	151	284	229	294	213	296	257	(4)
38	24	20	14	6	4	5	8	456	483	460	425	(5)
8	6	2	4	2	4	8	4	191	188	116	173	(6)
16	17	16	15	3	2	2	—	174	141	210	225	(7)
3	2	2	2	2	7	5	1	147	139	138	121	(8)
19	16	14	18	1	1	—	—	50	47	48	45	(9)
2	3	4	8	1	2	8	7	88	108	125	117	(10)
2	2	1	1	1	1	—	—	58	53	53	54	(11)
—	—	—	—	—	1	—	—	38	52	55	55	(12)
1	1	1	—	—	—	—	—	43	39	45	38	(13)
2	2	1	1	27	24	18	11	51	51	85	88	(14)
—	—	—	—	—	—	—	—	16	16	16	15	(15)
—	—	—	—	—	—	1	—	11	12	16	8	(16)
—	—	—	—	—	—	—	—	8	8	4	4	(17)
404	348	318	290	480	466	501	418	3,945	3,739	4,276	4,268	
—	—	—	—	—	—	—	—	—	—	—	—	
2	1	4	7	14	15	9	23	1,140	1,036	1,216	1,151	(1)
15	17	14	14	55	69	31	80	1,174	1,203	1,288	1,260	(2)
—	1	8	1	542	515	623	450	713	739	870	760	(3)
17	19	21	22	611	599	663	508	3,027	3,068	3,369	3,171	
—	—	—	—	—	—	—	—	—	—	—	—	
77	103	77	74	48	51	47	54	3,089	3,365	8,257	2,893	(1)
—	2	—	—	—	—	—	—	80	85	92	83	(2)
1	—	—	—	62	54	62	57	78	63	78	68	(3)
—	—	—	—	194	805	275	250	194	395	275	250	(4)
78	105	77	74	804	500	384	361	3,416	3,908	8,697	8,294	
—	—	—	—	—	—	—	—	—	—	—	—	
7	8	7	—	81	32	32	146	48	44	42	156	
—	—	—	—	—	—	—	—	—	—	—	—	
506	480	418	386	1,426	1,597	1,580	1,428	10,484	10,759	11,884	10,889	
—	—	—	—	—	—	—	—	—	—	—	—	
898					8,177					22,143		
1923				1923						1928		

**Calculated TOTAL WORLD'S COTTON MILL STOCK**  
**comparison on basis of Spinners' returns**

COUNTRIES	IN THOUSANDS OF ACTUAL BALES (regardless of weight)							
	AMERICAN				EAST INDIAN			
	Half year ending				Half year ending			
	Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922
EUROPE :—								
(1) Great Britain ..	115	104	152	188	19	20	14	14
(2) France ..	107	88	116	124	35	50	30	49
(3) Germany* ..	58	58	75	130	32	32	33	58
(4) Russia ..	18	26	18	18	—	—	—	—
(5) Italy ..	105	90	120	119	53	57	45	50
(6) Czecho-Slovakia ..	37	18	25	42	15	10	6	10
(7) Spain ..	18	32	27	118	6	3	4	16
(8) Belgium ..	22	17	27	21	22	28	19	22
(9) Switzerland ..	17	11	14	14	4	3	2	2
(10) Poland ..	14	12	14	14	2	6	6	9
(11) Austria ..	9	7	10	14	5	11	5	6
(12) Holland ..	20	10	15	16	8	8	4	10
(13) Sweden ..	17	11	14	11	1	2	1	1
(14) Portugal ..	7	6	5	6	—	—	—	—
(15) Finland ..	5	2	6	4	—	—	—	—
(16) Denmark ..	3	3	3	3	—	—	—	—
(17) Norway ..	2	1	1	1	—	—	—	—
Europe Total ..	569	496	637	838	202	239	169	242
ASIA :—								
(1) India .. ..	1	5	14	19	584	717	595	882
(2) Japan .. ..	198	160	167	307	219	370	378	365
(3) China .. ..	9	20	25	55	26	88	64	110
Asia Total ..	203	185	206	381	829	1,373	1,037	1,537
AMERICA :—								
(1) U.S.A. .. ..	1,554	977	1,908	1,124	5	9	3	6
(2) Canada .. ..	88	24	46	27	—	—	—	—
(3) Mexico .. ..	1	8	4	4	—	—	—	—
(4) Brazil .. ..	—	—	—	—	—	—	—	—
America Total ..	1,588	1,009	1,938	1,155	5	9	3	6
Sundries .. ..	—	3	8	1	8	—	—	—
HALF YEAR TOTALS ..	2,360	1,698	2,804	2,375	1,089	1,623	1,209	1,805

\* No returns have been received from Germany; the figures in italics are previous half-year's figures.

on 1st February 1924, with previous figures for  
made to the International Cotton Federation

IN THOUSANDS OF ACTUAL BALES  
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL			
Half year ending				Half year ending				Half year ending			
Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922	Jan. 31 1924	July 31 1923	Jan. 31 1923	July 31 1922
78	60	63	71	39	35	40	48	251	237	269	311 (1)
22	23	26	23	14	11	17	17	178	172	189	213 (2)
5	5	8	8	5	5	6	5	100	100	122	196 (3)
5	5	1	1	50	42	70	198	78	73	84	212 (4)
12	12	12	8	2	2	2	2	172	161	179	179 (5)
3	2	1	2	1	1	1	2	56	31	33	56 (6)
6	1	8	10	1	1	--	2	26	37	30	146 (7)
2	1	1	1	1	3	1	1	47	49	48	45 (8)
12	11	11	10	—	1	1	1	38	26	28	27 (9)
1	2	1	2	—	1	1	3	17	21	22	28 (10)
1	1	—	1	—	—	1	—	15	19	16	21 (11)
—	—	—	—	1	—	—	—	29	18	19	26 (12)
—	1	—	—	—	—	—	—	18	14	15	12 (13)
—	—	—	—	7	6	4	3	14	12	9	9 (14)
—	—	—	—	—	—	—	—	5	2	6	4 (15)
—	—	—	—	—	—	—	—	3	3	3	3 (16)
—	—	—	—	—	—	—	—	2	1	1	1 (17)
147	138	132	137	121	108	144	272	1,039	976	1,082	1,480
2	1	4	11	7	10	2	18	594	733	615	930 (1)
20	21	22	19	60	30	35	13	492	781	602	904 (2)
—	—	—	1	183	103	207	149	218	211	856	315 (3)
22	22	26	31	250	143	304	180	1,304	1,723	1,573	2,119
45	60	43	43	15	21	23	34	1,819	1,070	1,977	1,207 (1)
1	1	—	—	—	—	—	—	34	25	46	27 (2)
—	1	—	—	12	22	40	32	18	31	44	36 (3)
—	—	—	—	62	74	105	146	62	74	105	146 (4)
46	62	43	43	89	120	168	212	1,728	1,200	2,172	1,416
5	8	3	—	9	25	18	18	17	31	24	14
220	220	204	211	469	396	634	677	4,088	3,932	4,851	5,068

**CALCULATED TOTAL WORLD'S COTTON**  
**years 31 Jan., 1924, and 31 July,**  
**the International Cotton**

COUNTRIES	TOTAL ESTIMATED NUMBER OF SPINNING SPINDLES		MULE SPINDLES	
	Half year ending		Half year ending	
	Jan. 31, 1924	July 31, 1923	Jan. 31, 1924	July 31, 1923
<b>EUROPE :—</b>				
Great Britain .. .	56,724	56,588	48,970	44,043
France .. .	9,600	9,600	4,217	4,249
Germany* .. .	9,382	9,382	4,320	4,320
Russia .. .	7,246	7,246	2,898	2,898
Italy .. .	4,570	4,570	796	844
Czecho-Slovakia .. .	3,470	3,508	1,823	1,822
Spain .. .	1,818	1,818	622	622
Belgium .. .	1,698	1,683	479	469
Switzerland .. .	1,515	1,513	837	844
Poland .. .	1,024	1,200	490	478
Austria .. .	1,023	1,023	469	529
Holland .. .	692	669	215	218
Sweden .. .	568	566	116	105
Portugal .. .	503	487	173	166
Finland .. .	241	241	64	64
Denmark .. .	97	97	13	18
Norway .. .	66	66	13	18
Total .. .	100,282	100,247	61,515	61,092
<b>ASIA :—</b>				
India .. .	7,928	7,881	1,127	1,154
Japan .. .	4,351	4,877	15	51
China.. .	3,880	2,680	—	—
Total .. .	15,659	14,888	1,142	1,205
<b>AMERICA :—</b>				
U.S.A. .. .	87,740	87,897	—	—
Canada .. .	1,076	1,076	283	464
Mexico .. .	770	770	6	5
Brazil .. .	1,700	1,700	—	—
Total .. .	41,286	40,943	289	469
Sundries .. .	300	275	—	—
Grand total .. .	157,477	156,358	62,946	63,366

\* No Returns have been received from Germany; the figures in italics are previous half-year's figures.

**SPINNING SPINDLES (000's omitted) for the half  
1923, on basis of returns made to  
Federation's Statistics.**

RING SPINDLES		SPINDLES SPINNING EGYPTIAN COTTON		SPINDLES IN COURSE OF ERECTION	
Half year ending		Half year ending		Half year ending	
Jan. 31, 1924	July 31, 1923	Jan. 31, 1924	July 31, 1923	Jan. 31, 1924	July 31, 1923
12,754	12,540	20,174	18,870	179	50
5,383	5,351	2,627	2,257	70	150
5,062	5,062	791	791	90	90
4,348	4,348	150	150	—	—
3,774	3,726	565	444	54	53
1,647	1,686	350	263	12	6
1,191	1,191	155	155	—	—
1,219	1,214	35	39	31	32
678	669	849	838	5	6
584	722	101	116	43	24
554	494	45	49	7	—
477	456	—	—	19	16
452	461	10	18	2	1
380	821	—	18	—	10
177	177	8	2	7	—
84	84	—	—	—	—
53	53	—	—	—	—
88,717	88,553	25,855	24,005	519	488
6,801	6,177	55	9	142	196
4,836	4,826	338	407	608	339
3,380	2,080	—	—	42	700
14,517	13,683	393	416	702	1,235
87,740	87,897	?	?	?	(estimate) 1,000
793	612	—	57	—	—
764	765	14	23	—	7
1,700	1,700	—	—	—	?
40,997	40,474	14	80	—	1,007
300	273	40	55	18	—
94,531	92,987	26,802	24,556	1,329	2,680

## SHORT-TIME TABULATION.

The extent of short-time reported equals the following stoppage of the total number of spindles from which returns have been received, and may be considered the extent of stoppage of the whole industry.

TABLE DE CHÔMAGE. Le chômage indiqué dans les questionnaires, calculé sur la totalité des broches qui ont répondu, montre une suspension de travail comme détaillé ci-après. Ces chiffres (exprimés en semaines de 48 heures) peuvent être considérés comme l'arrêt complet de l'industrie entière dans chaque pays.

BETRIEBSSEINSCHRANKUNG Die Betriebsseinschränkung laut eingegangener Berichte, umgerechnet auf die sämtlichen antwortenden Spindeln, bedeutet eine Stilllegung derselben laut untenstehender Tabelle. Diese Zahlen sind mehr oder weniger für die ganze Industrie eines jeden Landes anwendbar.

Number of weeks of 48 hours during which the total number of spindles, from which returns have been received, were stopped.

Nombre de semaines de 48 heures durant lesquelles le nombre total des broches qui ont répondu ont chômé.

Anzahl der Wochen von 48 Stunden, während welchen die Totalanzahl der berichtenden Spindeln geruht hat

Countries.	HALF-YEAR ENDING				
	31st Jan., 1924	31st July, 1923	31st Jan. 1923	31st July, 1922	31st Jan. 1922
Great Britain	5·85	7·773	5·757	4 539	6·087
France ..	1·45	2·210	1·498	1 147	2·876
Germany ..	Not obtainable	Not available	Not available	1 745	3·257
Italy..	1·13	4·425	1·916	1 407	4·353
Czecho-Slovakia	6·66	10·192	11·559	5 748	3·870
Spain ..	9·10	2·930	Nil	Nil	6·311
Belgium ..	2·05	2·649	3·062	4 322	7·712
Switzerland	.78	1·623	2·220	3 113	2·538
Poland ..	2·77	3·512	4·074	Nil	Nil
Austria ..	8·19	8·074	7·468	5 858	8·321
Holland ..	6·44	.261	.401	078	Nil
Sweden ..	3·62	1·709	3·435	4 941	7·134
Portugal ..	Nil	Nil	.020	Nil	1·024
Finland ..	.49	.573	.867	.532	.419
Denmark ..	2·76	2·709	1·124	9·411	6·082
Norway ..	8·33	6·596	6·690	5 819	6·720
Japan <sup>+</sup> ..	9·42*	10·008*	10·188*	12 541*	16·521*
Canada ..	.22	.741	.081	.141	.414
Mexico ..	2·39	3·572	.165	Nil	1·427
China† ..	19·80†	4·250	—	—	—

\* This figure represents working weeks of 48 hours. The general working week in Japan was 132 hours, until May of 1923, when it was altered to a 120 hour week, calculated in Japanese working weeks; the stoppage is equal to 8·77 weeks for the last 6 months under review.

† The working week in China is 132 hours. Calculated in Chinese working weeks the stoppage is equal to 7·20 weeks for the last 6 months under review.

SPECIFICATION OF PART OF THE COTTON RETURNED AS "SUNDRIES" (IN ACTUAL BALES)  
Six Months ending 31st January, 1924, calculated from Actual Returns.

Country	Peruvian	African	Brazilian	Sea Islands , and West Indian	Others (not specified in returns)	Total	STOCKS				Others (not specified in returns)	Total
							Peruvian	African	Brazilian	Sea Islands , and West Indian		
Great Britain ..	99,757	38,255	30,714	8,898	22,144 <sup>a</sup>	199,768	14,188	4,383	5,798	9,734	4,471 <sup>b</sup>	38,374
France ..	239	3,387	8,227	3,637	17,312	32,802	214	1,305	2,079	909	9,573	14,080
Italy ..	..	..	132	116	—	—	—	—	—	—	1,480	—
Czechoslovakia ..	402	137	118	112	1,305	2,074	166	—	11	—	—	—
Belgium ..	..	1,768	283	—	163	2,166	19	—	246	—	8	778
Switzerland ..	..	30	11	—	750	800	—	—	50	—	194	244
Poland ..	..	—	—	—	—	—	—	—	—	—	—	—
Holland ..	104	11	284	—	—	—	349	156	—	427	—	383
Sweden ..	..	8	—	—	—	—	55	63	—	—	—	—
Portugal ..	..	—	—	20,500	—	—	—	—	—	6,500	—	6,500
U.S.A. ..	..	23,828	—	—	—	—	6,000	26,500	—	—	—	—
Mexico ..	..	—	—	—	—	—	23,272	—	—	—	—	—
Finland ..	..	—	—	—	—	—	—	—	—	—	—	—
Austria ..	197	—	—	100	—	—	—	—	—	—	—	—
China ..	..	—	—	—	—	—	—	—	—	—	—	—
Brazil ..	..	—	—	193,800	—	—	—	—	—	61,875	—	—
	124,035	43,729	254,055	12,647	682,641	1,117,107	23,063	6,209	77,029	10,643	220,528	337,472

<sup>a</sup> Includes : Sudanese, 5,949; Australian, 4,482; Ecuadorian, 2,647; Argentine, 1,710; Turkish, 1,512; Chinese, 1,445; Persian, 978; Haytian, 518; Tanganyikan, 459; Uganda, 428; Cyprian, 220; Colombian, 194; Mexican 106; etc.

<sup>b</sup> Includes : Sudanese, 2,248; Australian, 688; Tanganyikan, 229; Ecuadorian, 319; Turkish, 22; Chinese 193; Persian, 161.

The corresponding table for the previous half year appeared in the International Cotton Bulletin No. 6, page 264

## INTERNATIONAL COTTON BULLETIN

## VISIBLE SUPPLY (From "Cotton," Mar. 1st, 1924).

The following statement (in thousands of bales) includes English, Continental, American, Egyptia  
and East Indian Stocks and afloat on the given dates:-

		1924	1924	1923	1922	1914
		Feb. 29	Feb. 22	Mar. 2	Mar. 3	Mar. 6
	American.					
Stock	- Liverpool, Manchester, etc.	582	613	508	619	1,012
Continent	.. ..	309	269	338	500	1,010
U.S. Ports	.. ..	705	819	722	1,093	881
U.S. Interior	.. ..	780	815	867	1,841	682
Afloat	- Great Britain	.. ..	62	65	86	62
Continent	.. ..	234	296	211	195	861
	TOTAL	2,782	2,877	2,732	3,872	4,220
	Egyptian.					
Stock	- Liverpool, Manchester, etc.	113	108	136	122	116
Continent	.. ..	14	13	14	15	2
Alexandria	.. ..	225	236	292	312	333
Afloat	- Great Britain	.. ..	16	25	27	10
Continent	.. ..	20	15	14	15	9
	TOTAL	388	397	483	474	495
	East Indian.					
Stock	- Liverpool and Manchester	.. ..	56	47	54	15
London	.. ..	—	3	4	1	3
Continent	.. ..	46	44	18	19	39
Bombay Harbour*	.. ..	49	25	2	10	9
Afloat	- Great Britain	.. ..	70	80	40	8
Continent	.. ..	234	199	150	66	174
	TOTAL	455	394	268	127	247
	Sundries.					
Stock	- Great Britain	.. ..	102	109	165	300
Continent	.. ..	9	10	9	13	15
Afloat	- Great Britain	.. ..	32	33	76	50
Continent	.. ..	5	6	5	6	3
	TOTAL	148	158	255	380	175
	GRAND TOTAL	.. ..	3,773	3,826	3,738	4,858
*Bombay on shore not included	.. ..	?	?	?	?	?

## STOCKS.

		1924	1924	1923
		THIS WEEK	LAST WEEK	
Liverpool: Feb. 20	AMERICAN	402,100	522,460	463,370
	BRAZILIAN	30,550	31,730	47,300
	EGYPTIAN	85,250	85,020	116,300
	SOUDAN	7,830	8,350	—
	PERUVIAN	50,020	53,970	94,940
	WEST INDIAN, ETC.	2,780	2,960	3,190
	EAST AFRICAN	4,110	5,300	—
	WEST AFRICAN	4,280	4,390	19,250
	AUSTRALIAN	580	680	—
	EAST INDIAN, ETC.	55,000	45,680	52,420
Manchester:	TOTAL	782,590	763,090	796,770
	AMERICAN	89,815	91,984	44,708
	EGYPTIAN	28,448	21,478	19,372
	EAST INDIAN, ETC.	572	1,359	1,720
London	.. ..	1,000	3,000	4,470
United States: Feb. 29				
AT THE PORTS	.. ..	795,000	810,000	722,000
" INTERIOR TOWNS (42)	.. ..	780,000	815,000	867,000
NEW YORK	.. ..	157,000	158,000	68,000
NEW ORLEANS	.. ..	170,000	161,000	162,000

## EGYPTIAN STATISTICS (In Bales).

Feb. 27—		This Week	Since 1st Aug. 1923	Same Time 1922-23	Same Time 1921-22
Receipts in Alexandria*	.. ..	18,332	777,880	769,096	571,456
Shipments—Manchester	.. ..	8,500	154,824	116,286	94,487
" Liverpool	.. ..	6,000	171,208	176,616	116,869
" Other U.K. ports	.. ..	—	—	100	30
" Continent, India and Japan	.. ..	12,250	263,590	206,777	140,208
" America	.. ..	8,750	89,053†	181,472	146,690
All parts	.. ..	85,500	678,735	681,251	498,229
Stock in Alexandria*	.. ..	215,200	—	288,000	810,400

\*Each bale represents 7½ cantars. (A cantar=90lb.) †Including 300 bales for Canada.



## STATE OF TRADE

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### Reports from Affiliated Spinners' and Manufacturers' Associations.

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#### AUSTRIA.

##### WAGES.

In the months of November and December last a general rise in wages in the cotton spinning industry took place to the extent of 5 per cent. for the operatives paid by the hour, and 3 per cent. for those on piece work. In the weaving departments only those paid by the hour received 5 per cent. rise. Since then still another rise has taken place, namely, in the second half of the month of February the allowance for the living wage, which exists apart from the original wages list and forms a percentage of increase to it, was raised from 50 per cent. to 57 per cent., which was equal to 4·6 per cent. on the total wage then being paid. The following is a list of the weekly wages, calculated on the 48-hour week, of the principal operatives :

##### (a) SPINNING MILLS :

Spinner .. .. ..	öK 307,000 or approximately 4½ dollars
Flyer-spinner (female)	
Throstle-spinner .. .. ..	„ 210,000 „ 3 „
Doubler .. .. ..	
Unskilled labourer (male) .. .. ..	„ 207,000 „ 2·95 „
Unskilled labourer (female) .. .. ..	„ 158,000 „ 2·25 „

These wages are subject to a tax on the average of 20 per cent. It should also be noted that the individual production of the worker is still considerably behind that of pre-war, so that, to obtain the same output 30 per cent. more operatives have to be employed than before the war.

##### (b) WEAVING MILLS.

Male and female weavers working two looms (up to 100 cm. wide) .. .. ..	öK 270,000 or 3·85 dollars
Male and female weavers on looms (up to 200 cm. wide) .. .. ..	„ 292,000 „ 4·20 „
Warpers, piecers, drawers-in (female) .. .. ..	„ 224,000 „ 3·20 „
Unskilled labourers (female) .. .. ..	„ same as spinning
Unskilled labourers (male) .. .. ..	„ same as spinning

The tax on these wages for social charges and the decrease in production in comparison with that of pre-war is similar to that of the spinning section.

##### HOURS OF WORK.

The 48-hour working week is established by law in Austria. The working of overtime is only admissible in certain exceptional circumstances. In factories where women and children are predominant, the working hours are shortened to 44 hours per week ; this condition, however, in

all cases where similar agreements have been arrived at between employers and trade unions is not actually carried out. Christmas, Easter Day and Whitsuntide; further, New Year's Day and 1st and 12th of November are considered holy days, when work is stopped. No payment is made for these days.

#### STATE OF TRADE.

The sale of cotton yarns, in the months of December and January, reached an average of  $1\frac{1}{2}$  million pounds (English) for a total production of round 4 million pounds. In the weaving mills proper, 1.2 million pounds are worked up, the remainder of about 1.3 million pounds is turned into twist and further worked up in this state. In any case, only about 40 per cent. of the total production in the condition of simple yarns and twists can be sold, whilst the remaining 60 per cent. can be disposed of in the shape of woven goods only.

Business in cotton yarns has, especially during the last few weeks (in any case in the home trade) been very weak, and this stagnation affected in the first place American cotton yarns. Spinning mills produce about 70 per cent. of their capacity of output, and have on the average orders for four to five weeks in hand.

The prices are very depressed and the margin left to the spinners must be said to be quite inadequate. As regards woven goods, the conditions in this case are still more unsatisfactory because foreign competition makes itself sensibly felt. An effective tariff duty does not exist, and thus foreign competitors are in a position to dump their surplus production on the Austrian market at very low prices. The chances of export, in view of this fact, are very slight indeed, the more so since the buying countries (Czecho-Slovakia, Hungary, Poland and Germany) shut themselves off by exorbitant duties and prohibitions against the import of cotton yarns.

#### TRADE PROSPECTS.

With respect to the further developments in the conditions we can only make assumptions. An effective revival in sales is in general expected, that is to say, when a real improvement in the international cotton trade will take place.

The discrepancy between the prices of the old and the new cotton crops, naturally, does not contribute to an optimistic view being taken of the future development of the trade.

#### IMPORT AND EXPORT.

The statistics relating to the export in 1923 show the following figures :

Cotton yarns ..	10,231	Imports ..	..	48,547	Exports
Cotton cloths ..	128,690	"	..	30,333	"
(1,000 gold crowns are equal to 200 dollars)					

*The following is the original article in German.*

#### LÖHNE.

In den Monaten November und Dezember 1923 wurden Erhöhungen der Tariflöhne insoweit zugestanden, als bei der Baumwollspinnerei den im reinen Stundenlohn beschäftigten Arbeitern ein Aufschlag von 5%, den Akkordarbeitern von 3%, in der Weberei nur den Stundendarbeitern eine Erhöhung um 5% gewährt wurde. Seither ist noch eine allgemeine Lohnerhöhung erfolgt und zwar in der zweiten Hälfte Februar, indem die Teuerungszulage, welche neben dem Tariflohn

besteht und einen perzentuellen Zuschlag zu demselben darstellt, von 50 auf 57% erhöht wurde, was mit einer +6%igen Steigerung der Gesamtlöhne gleichbedeutend ist. Derzeit stellen sich die Wochenlöhne (zu 48 Stunden gerechnet) der wichtigsten Arbeiterkategorien wie folgt :

(a) SPINNEREI :

Spinner .. .. .. ..	öK 307,000.— oder rund 4½ Dollar
Fleierinnen, Throstlerinnen un'l	

Zwirnerinnen .. .. .. ..	„ 210,000.— „ 3 „
ungelernte Hilfsarbeiter .. .. „ 207,000.— „ 2·95 „	
ungelernte Hilfsarbeiterinnen .. .. „ 158,000.— „ 2·25 „	

Auf diesen Arbeitslohn lasten soziale Abgaben im Ausmasse von durchschnittlich 20%. Zu bemerken ist weiters, dass die individuelle Leistung der Arbeiter noch ziemlich stark in der Friedensproduktion zurückbleibt, so dass für ein gleiches Erzeugungsquantum um ca. 30% mehr Arbeiter beschäftigt werden müssen, als vor dem Kriege.

(b) WEBEREI :

Weber und Weberinnen auf 2 Stühlen bis 100 cm breit öK 270,000	
oder ca. 3·85 Dollar.	

Weberei und Weberinnen auf Stühlen über 200 cm breite Ware öK 292,000	
oder 4·20 Dollar.	

Zettlerinnen, Anknüpfierinnen, Einzieherinnen öK 224,000 oder 3·20	
Dollar; ungelernte Hilfsarbeiter und Hilfsarbeiterinnen wie bei	
der Spinnerei.	

Bezüglich des Zuschlages für soziale Lasten und der Arbeitsleistung im Verhältnis zum Frieden gilt ebenfalls das gleiche wie bei der Spinnerei ausgeführt wurde.

#### ARBEITSZEIT.

In Oesterreich ist der 8stündige Arbeitstag bezw. die 48 Stundenarbeitswoche gesetzlich festgelegt. Die Leistung von Ueberstunden wird nur im beschränktem Ausmasse zugelassen. Für Betriebe, welche überwiegend Frauen und Jugendliche beschäftigen ist die Arbeitszeit in der Woche mit 44 Stunden begrenzt, doch wird diese Bestimmung in allen Fällen, wo dahingehende Vereinbarungen zwischen der Arbeitgeberschaft und den Gewerkschaften zustande gekommen sind, praktisch nicht angewendet. Weihnachten, Pfingst- und Osterfeiertage, ferner 1. Jänner, 1. November und 12. November gelten als hohe Feiertage, an welchen nicht gearbeitet wird. Eine Lohnbezahlung an diesen Tagen findet nicht statt.

#### GESCHÄFTSLAGE.

Der Absatz in Baumwollgarnen hat in den Monaten Dezember und Jänner durchschnittlich 1½ Mill. Pfund englisch betragen, gegen eine Gesamterzeugung von rund 4 Mill. Pfund. In den eigenen Webereibetrieben werden ca. 1·2 Mill. Pfund verarbeitet, der Rest con ca. 1·3 Mill. Pfund wird verzwirnt und in dieser Form weiterverarbeitet. Jedenfalls können nur ca. 40% der Garnproduktion in Form von einfachen Garnen und Zwirnen verkauft werden, während die restlichen 60% nur im verarbeiteten Zustand als Webware abzusetzen sind. Der Geschäftsgang in Baumwollgarnen ist in den letzten Wochen namentlich im Inlandsverkehr ein sehr schwacher, wobei die Stagnation in erster Linie die Amerika-Garne betrifft. Die Spinnereibetriebe sind mit ca. 70% ihrer Leistungsfähigkeit ausgenutzt und für durchschnittlich 4—6 Wochen mit Aufträgen versehen. Die Preislage ist sehr gedrückt, so dass die Spinn-

margen als durchwegs unzulänglich zu bezeichnen sind. In Webwaren ist die Geschäftslage eine noch ungünstigere, weil sich hier die Auslandskonkurrenz in empfindlicher Weise fühlbar macht. Ein nennenswerter Zollschutz besteht nicht und die Auslandskonkurrenz ist daher in der Lage ihre überschüssige Produktion zu tiefen Preisen auf den österr. Markt zu werfen. Demgegenüber sind die Exportmöglichkeiten geringe, weil sich wichtige Absatzländer wie die Tschecho-Slowakei, Ungarn, Polen und Deutschland durch Prohibitiv-Zölle und durch Einführverbote gegen die Einfuhr von Baumwollwaren abgesperrt haben.

#### GESCHÄFTLICHE AUSSICHTEN.

Bezüglich der weiteren Entwicklung der Geschäftslage sind nur Vermutungen möglich. Eine wirksame Belebung des Absatzes wird im allgemeinen nur von einer Festigung der Baumwollmärkte erwartet bezw. von einer Besserung des internationalen Baumwollgeschäfts. Die Diskrepanz zwischen den Baumwollpreisen alter und neuer Ernte trägt naturgemäß dazu bei, dass eine optimistische Beurteilung der weiteren Geschäftsentwicklung nicht aufzukommen vermag.

#### EIN- UND AUSFUHR.

Die Statistik des Aussenhandels für das Jahr 1923 weist in der Ein- und Ausfuhr die nachstehenden Ziffern auf :

	Einfuhr :				Ausfuhr :
Baumwollgarne	10.231	..	..	..	48.547
Baumwollgewebe 128.690	..	..	..	..	30.333
(in 1000 Goldkronen ist gleich 200 Dollar.)					

## BELGIUM.

#### SALARIES.

In consequence of an increase in the cost of living a further increase of 5 per cent. in wages has been granted, to date from 16th of February. The increase in the wages within the last 12 months actually amounts to 25 per cent.

#### HOURS OF WORK.

The law of eight hours is being strictly adhered to. A few weeks ago, Bills were laid before Parliament with a view to lessening the excessive severity of our legislation. According to the terms of the Bills, industrialists would have had placed to their credit an additional number of hours to compensate them for time lost through local feast days, breakdown of machinery, etc.

The ministerial crisis that lately arose unexpectedly has retarded the solution of this question.

#### STATE OF THE MARKET.

The demand for cotton cloth is very limited in this country owing to the high current prices of the Belgian franc. The depreciation of our currency is, on the other hand, favourable to export business. In cotton spinning mills orders are renewed regularly, and although the orders booked are not very important there is no reason to consider a reduction in the hours of work for the present.

The fluctuations in the rate of exchange enforce, on certain days, a stoppage of sales, buyers and sellers finding it impossible to cover themselves promptly enough.

*The following is the original of this report :*

## BELGIQUE.

### SALAIRE.

A la suite de la hausse du coût de la vie une nouvelle majoration de 5 pour cent a été appliquée aux salaires à dater du 16 février. La majoration des salaires atteint actuellement 25 pour cent depuis un an.

### HEURES DE TRAVAIL.

La loi des 8 heures continue à être strictement appliquée. Il y a quelques semaines des projets de loi avaient été déposés pour atténuer la rigueur excessive de notre législation. Aux termes de ces projets les industriels auraient eu à leur disposition un crédit d'heures supplémentaires pour récupérer les heures perdues par suite de fêtes locales, bris de machines, etc.

La crise ministérielle survenue récemment, a retardé la solution.

### ETAT DU MARCHE.

La demande en tissus de coton est très limitée dans le pays à raison des prix élevés pratiqués en francs belges. La dépréciation de notre monnaie favorise par contre les affaires d'exportation. En filature de coton les ordres se renouvellent régulièrement et bien que le carnet d'ordres ne soit pas important, il n'y a pas lieu d'envisager pour le moment une réduction des heures de travail.

Les fluctuations des changes obligent à certains jours à arrêter les ventes, acheteurs et vendeurs se trouvant dans l'impossibilité de se couvrir assez rapidement.

## DENMARK.

### WAGES.

As a result of negotiations during several months and after the workers having first given notice to strike, new agreements for one year were reached on the 7th of March ; in accordance therewith all wages have been increased by 2 per cent., corresponding to the rise of the index figure from August, 1923, to February, 1924. In consequence of the agreements the wages are, by August, subject to modifications per cent. according to the movement of the index figure.

### HOURS OF WORK.

The 48-hour week is not established by law in Denmark, but was introduced in 1920 by voluntary agreement between the employers and the workers ; although notice has been given by the former it is, however, not likely that the employers will demand a prolongation of the working hours—the textile industry, as well as all the other industries, having accepted the 48-hour week for the present year. In accordance with the agreement all overtime must be paid for extra.

### DEMAND.

Until New Year sales were very poor, and the general opinion was that after New Year complete stoppage or at any rate extensive organization of short time would be necessary.

The continued rise in prices for all goods, to a large extent due to the declining exchange of our country, however, seems to have caused customers to buy, and during the last two months the factories have received orders enabling practically full time to be worked.

Another cause of this improvement is no doubt due to the fact that German competition has lately decreased to a great extent and, as

mentioned in our last report, the endeavour made by German firms to establish branch offices in this country does not seem to have been successful, as several of these offices have already had to close down.

The Danish production is thus increasing, but the manufacturers' profit is only small on account of severe home competition.

#### FUTURE OUTLOOK.

Owing to the uncertainty of the conditions it is very difficult—if not impossible—to say anything as regards the prospects for the near future.

#### IMPORTS OF COTTON YARN INTO DENMARK.

Cotton yarn, grey :	kg. 1922	kg. 1923
For weaving .. .. ..	1,446,400	875,000
For fish nets .. .. ..	134,300	134,800
For sewing, knitting and embroidery	331,000	318,500
Cotton yarn, dyed :		
For weaving .. .. ..	88,800	65,300
For sewing, knitting and embroidery	217,000	224,100

#### ENGLAND.

The Cotton Spinners' and Manufacturers' Association report that a deputation of cotton employers waited upon the Secretary of State for the Home Department, at the Home Office, Whitehall, London, on Wednesday, the 19th March, to lay before him their views on matters which affected the industry. Mr. Henderson, in response to the invitation made by the employers, consented to go to Lancashire to pay a visit of inspection of the mills.

#### WAGES.

No change.

#### HOURS OF WORK.

Forty-eight hours weekly are worked.

#### DEMAND.

This is very spasmodic. No organized short time is in force in the manufacturing section, but a large number of mills have only a percentage of their productive machinery running. The spinning members of the Association have been recommended to follow the lead of the Federation of Master Cotton Spinners' Associations in the matter of curtailment of production, and are stopping their spinning machinery equivalent to  $21\frac{1}{2}$  hours per week.

#### FUTURE OUTLOOK.

Uncertain.

*The Federation of Master Cotton Spinners' Associations report :*

In consequence of continued depression in the American spinning section of the cotton industry the Federation of Master Cotton Spinners balloted the members in this section on the advisability of curtailing production to the extent of  $21\frac{1}{2}$  hours per week during the months of March, April and May. Under the by-laws of the Federation, short-time ballots become effective if 80 per cent. of the members express themselves as being favourable to the proposal to adopt short time. The ballot in this case showed that the owners of over 87 per cent. were agreeable to reduce production by working not longer than  $26\frac{1}{4}$ , out of 48 hours, per week. The movement was, therefore, put into operation at the beginning of March, and since that time, due to the efforts of the Organization Committee of the Federation, it has grown to such a degree of perfection that practically every member of the Federation is now carrying out

short time. The Federation has issued a manifesto to the trade, strongly urging the loyal observance of members to the proposal, from which it is hoped beneficial results will accrue to all concerned.

Commenting upon the situation the *Manchester Guardian*, under date 26th March, 1924, states :

" In announcing a little over a month ago the result of the ballot of the American section of the cotton spinning industry on the short-time proposal, Mr. Holroyd, the President, referred to it as one of the best that the Federation had ever produced by such a ballot. Out of the total number of spindles owned the percentage actually secured in favour of the suggested reduction of the working week from one of 48 hours to one of 26½ hours for three months was 87·54. Of the remainder the owners of only 6·70 per cent. declared themselves hostile to the proposal, and the owners of 5·76 failed to reply. In other words, the owners of 22,861,886 spindles expressed themselves in favour, and the owners of only 1,748,466 against. Since then strenuous efforts have been made to get those who either actually opposed or expressed no opinion on the question to fall into line, and at the meeting of the Federation Short-Time Organization Committee yesterday it was stated that the percentage of members who had loyally adopted organized curtailment of production now amounted to 99·31 per cent. This unprecedented result, which it is to be hoped will be consistently maintained, leaves ·69 per cent. who have not yet seen their way to adopt the proposal, and it is composed of only two firms. When matters have reached their present stage it does seem a pity that even two members should deem it advisable to stand out of the scheme. The purpose of those who proposed short time was to try to raise the much afflicted American section out of the depths into which it seemed to be slipping at an ever-accelerating pace. It was put forward under what was deemed to be an ineluctable necessity. It has undoubtedly already done something to improve the state of affairs in the yarn market, but if complete unanimity had prevailed the results would certainly have been even more satisfactory."

## FINLAND.

The state of trade is worse, owing to a bad crop in our country last summer. The demand is not so good as before, but the cotton mills are still working full time with a 47-hour week.

The wages for the workers have not been altered since the last report.

The export and import figures of cotton goods during the last three months are as follows :—

	EXPORTS tons						IMPORTS tons	
November	..	..	..	..	..	—	..	190
December	..	..	..	..	..	—	..	110
January	..	..	..	..	..	1	..	168

## FRANCE.

The condition of the weaving industry continues satisfactory. Until recently the spinning industry has lagged behind the weaving ; however, in some cotton districts an appreciable improvement has taken place in this respect during the last few days.

On the whole stocks are small. In the present condition of things it is not anticipated that any organized short time will take place in the whole of the cotton districts within the near future. However, owing to wild fluctuation in the prices of the raw material and the high tension of the rates of exchange, it is impossible to foretell what the future of the cotton industry will be even within the next few days.

#### WAGES.

Several centres have witnessed a rise in wages. Alsace 6 to 7 per cent. in November; Vosges 4 per cent. in December; Roubaix-Tourcoing 10 centimes per hour on March 1.

#### PRICES.

		Warp 28's (per kilo)	Calico $\frac{3}{4} 20 \times 20$ (per metre)
December 15 .. .. ..	Fr. 20.50 ..	Fr. 2.836 ..	
February 18 .. .. ..	Fr. 24.30 ..	Fr. 2.90 ..	

#### EXPORTS OF COTTON YARNS AND COTTON GOODS DURING THE 3RD AND 4TH QUARTERS OF 1923; ALSO THE WHOLE YEAR:

			3rd Quarter	4th Quarter	Whole Year
COTTON YARNS					
(a) Total figures (all kinds) in metric cwts. (100 kilos)		18,726	25,586	83,383	
(b) Detailed statement of the principal kinds of yarns					
Single   Unbleached, in metric cwts. (100 kilos)		8,272	13,363	35,036	
yarns   Bleached " " "		369	195	1,255	
Dyed or figured " " "		1,008	659	2,907	
Glazed " " "		475	254	1,688	
Double   Unbleached " " "		1,052	1,258	5,674	
yarns   Bleached " " "		1,114	2,009	5,174	
Dyed or figured " " "		2,380	3,593	14,733	
Glazed " " "		4,095	6,247	18,800	
COTTON GOODS					
(a) Total figures (all kinds), in metric cwts. (100 kilos)		108,840	147,878	446,974	
Unbleached .. .. .. .. ..		20,088	29,809	77,949	
Bleached or manufactured with bleached yarns .. .. .. .. ..		19,153	21,872	67,821	
Surgical bandages, unbleached or bleached .. .. .. .. ..		622	212	2,601	
Dyed goods .. .. .. .. ..		38,324	51,459	169,668	
Manufactured with dyed yarns .. .. .. .. ..		4,050	6,649	19,051	
Prints .. .. .. .. ..		4,189	6,367	17,687	
Velours .. .. .. .. ..		746	1,502	3,821	
Blanketing .. .. .. .. ..		9,506	13,866	36,437	
Hosiery .. .. .. .. ..		3,311	3,814	18,804	
Mixed cloths .. .. .. .. ..		1,894	1,810	6,574	

*The following is the original in French.*

Le tissage continue à être dans une situation satisfaisante.

La filature était restée en retard sur le tissage jusqu'à ces derniers temps. Mais tout récemment la marge a commencé à se relever sensiblement dans certaines régions cotonnières.

D'une façon générale, les stocks sont peu importants.

Dans l'état actuel des affaires, un chômage concerté dans l'ensemble des régions cotonnières n'est pas à prévoir dans un avenir prochain. Toutefois, les violentes fluctuations de prix de la matière première et la tension des changes ne permettent pas d'émettre des pronostics sur l'avenir, même immédiat, de l'industrie cotonnière.

## SALAIRS.

Des relèvements de salaires ont eu lieu dans plusieurs centres. Alsace 6 à 7 pour cent en novembre ; Vosges 4 pour cent en décembre ; Roubaix-Tourcoing 10 centimes l'heure le 1<sup>er</sup> mars.

## PRIX.

		Chainé 28 (le kilo)	Calicot $\frac{1}{4} 20 \times 20$ (le mètre)
15 décembre ..	..	Fr. 20.50	Fr. 2.356
28 février ..	..	Fr. 24.80	Fr. 2.90

EXPORTATION DE FILÉS ET TISSUS DE COTON PENDANT LES  
3<sup>me</sup> ET 4<sup>me</sup> TRIMESTRES DE 1923 ET L'ANNÉE ENTIERE.

FILÉS DE COTON			3 <sup>me</sup> trimestre	4 <sup>me</sup> trimestre	Année entière
(a) Chiffre total (toutes catégories) ..	en Q.M.	18,726	25,586	88,883	
(b) Décomposition par principales catégories de filé :					
Fils simples	Ecrus ..	en Q.M.	8,272	13,363	35,036
	Blanchis ..	"	369	195	1,255
	Teints ou chinés ..	"	1,008	659	2,907
	Glacés ..	"	475	254	1,683
Fils retors	Ecrus ..	"	1,052	1,258	5,674
	Blanchis ..	"	1,114	2,009	5,174
	Teints ou chinés ..	"	2,330	3,598	14,733
	Glacés ..	"	4,095	6,247	18,800
TISSUS DE COTON					
(a) Chiffre total (toutes catégories) ..	en Q.M.	108,840	147,678	446,974	
(b) Décomposition par principales catégories de tissu :					
Ecrus ..	en Q.M.	20,088	29,609	77,949	
Blanchis ou fabriqués avec des fils blanchis ..	"	19,153	21,872	67,821	
Bandes pour pansements écrues ou blanchies ..	"	622	212	2,601	
Teints ..	"	38,824	51,459	169,668	
Fabriqués avec des fils teints ..	"	4,050	6,649	19,051	
Imprimés ..	"	4,189	6,367	17,687	
Velours ..	"	746	1,502	3,621	
Couvertures ..	"	9,506	13,866	36,487	
Bonneterie ..	"	3,311	3,814	13,804	
Etoffes mélangées ..	"	1,894	1,810	6,574	

## HOLLAND.

As mentioned in our last report in No. 6 issue of the INTERNATIONAL COTTON BULLETIN, a lock-out was enforced in 19 mills in Enschede on the 24th November last, which involved about 10,000 workpeople. This was followed by an extension of the lock-out at 20 more mills outside Enschede on the 22nd December, bringing the total number of workpeople involved up to about 21,000. So far, there has been no change whatever in the situation of the lock-out, and neither the masters nor the workpeople are inclined to give way. A few days ago, however, attempts were made to open negotiations, and on the 25th March there was a conference in The Hague between the representatives of the masters and the trade unions under the presidency of an official of the Department of Labour. At the time of writing, however, no settlement had been reached.

## ITALY.

On the whole, there have been no changes in the wages of the Italian cotton industry during the year 1923, and, with the exception of some details, there is no intention at present of modifying the agreement made with the operatives two years ago.

The 48-hour working week is fixed by law, with permission for one hour's prolongation in cases of urgent deliveries, but this is seldom necessary; therefore it may be understood that the 48-hour working week is strictly adhered to.

Although the demand is scarce, spinners and weavers have sufficient work to keep the machinery going for a few months. In particular, weavers who produce fancy goods and cloth containing artificial silk are sufficiently engaged, whilst those working on grey cloth, shirtings and such like, are rather short of orders. No organized stoppage is in force, but many mills are working short time, especially those weaving grey cloth. On the whole the position is sound and statistics show that stocks are small.

It is hoped that a stronger demand will arise with the coming season, but with such an unsettled raw cotton market the prospects are uncertain.

The quantity of raw cotton imported into Italy during the year 1923 amounts to 1,853,412 quintals, and during the month of January, 1924, to 180,304 quintals. Cotton yarn and cloth imported into Italy from the 1st January to the end of September, 1923, amounted to 33,600 quintals; exports during the same period were 387,600 quintals.

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## NORWAY.

Since our latest report no change has taken place regarding the wages of operatives.

The trades unions have given notice of their withdrawal from the existing agreement from April 1st, and negotiations for a new agreement have not yet been commenced.

On account of certain principal questions of guarantees required by the employers, guarantees that the trades unions are not willing to grant, a lock-out has been established in all the leading industries, as well as in the cotton industry.

It is impossible to give any opinion whatever at the moment as to the duration of the conflict.

The 48-hour week was established in all Norwegian industries on January 1, 1920, according to law of July 11, 1919.

The demand is dull, mainly owing to reduced purchasing power.

On account of the lock-out there is a general feeling of uncertainty as regards the future trend of business.

The imports of raw cotton during the year of 1923 were 3,544 metric tons, against 2,420 during the foregoing year.

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## POLAND.

### WAGES.

Wages are now fixed in "zloty," the new Polish unit of currency, equal to the golden franc. This new currency is not yet in circulation and is used meanwhile only as a measure.

The wages vary from 2·78 to 8·74 zloty per day.

## HOURS OF WORK.

The 46-hour working week is strictly adhered to.

## DEMAND.

The demand is now very small and this has led to a curtailment of production. This state of affairs is caused by the general economic crisis in Poland, which is associated with the stabilization of the Polish mark and the efforts of our Government to improve the finances of the State. Under these circumstances the profits of the manufacturers are nil, or, at the most, very small indeed.

## FUTURE OUTLOOK.

We do not see any hope of an immediate improvement of things. In our opinion the crisis will be a long one, as was the case under somewhat similar circumstances in Austria.

## IMPORTS AND EXPORTS.

The following are the latest available figures abstracted from the monthly statistical reports, *Miesiecznik Statystyczny*, and refer to the period January-April, 1923 :

IMPORTS.			EXPORTS.		
		TONS			TONS
Cotton ..	..	23,300	Yarn ..	..	912
Wool ..	..	7,886	Cotton Tissues ..	..	2,618
Jute ..	..	3,892	Woollen ..	..	377
Tissues ..	..	1,930			
Yarn ..	..	2,110			

## PORTUGAL.

## WAGES.

No change has taken place since September of last year, the work-people still receiving approximately 20 times the pre-war rate of wages.

## HOURS OF WORK.

No alteration has been made in the 48-hour working week, but in special circumstances overtime is arranged by mutual agreement between employers and operatives.

## DEMAND.

All Portuguese spinning, weaving and dyeing mills are working full time, and the demand for good qualities remains strong.

The present rate of 150 escudos per pound sterling is 33 times greater than the pre-war quotation of 4·5 escudos to the pound.

## FUTURE OUTLOOK.

Good.

## IMPORTS AND EXPORTS.

No official statistics have been published since 1922. Fine counts of yarn and also light cloth are imported in progressive quantities for hosiery, dyeing and printing, for domestic consumption and export to the Portuguese colonies.

## COTTON SUPPLY.

There is an increasing demand for Brazilian and Portuguese colonial cotton in competition with American cotton for quality and prices.

A Portuguese Colonial Conference will be held in May next, by the invitation of the Portuguese Geographical Society, Lisbon, to settle the basis of a Portuguese Empire cotton growing organization and to increase cotton growing in Portuguese colonies with Government assistance and co-operative financial support.

## RUSSIA.

The wages of all workmen have been gradually rising during the last year in accordance with the cost of living index fixed by the People's Commissariate of Labour. The wages of workmen employed in the textile industry in particular have shown almost a twofold increase (the wages in October-December, 1922, being 43·6 per cent. of the pre-war ones, and 81·8 per cent. in October, 1923). In January, 1924, there has been a new rise of 25 per cent. of the existing wages.

All textile mills are working the full working week, i.e., 46 hours.

In connection with the position of the trade, the demand for textile manufactures has considerably increased, and there is a scarcity of cotton fabrics of popular qualities. As regards the profits of manufacturers we must point out that all, more or less, important mills have been nationalized and now belong to the State.

The real profit of our Trusts for the last year cannot yet be stated, as all Cotton Trusts have not yet balanced their books. At present the profits from January 1 to October 1, 1923, are estimated approximately about 30 million roubles, besides the amortisation funds amounting to 19 million roubles.

The production of the textile industry has considerably increased during last few years. In connection with the increased demand there is expected to be a further development of the industry and a respective increase of the production of manufactures.

Exports and imports from January 1, 1923, to January 1, 1924, are as follows :

	Export		Import
Raw materials ..	2,504,200 poods	..	2,694,700 poods
Manufactured goods ..	18,100 "	..	327,000 "

## SPAIN.

### WAGES.

Wages remain the same and there is no agitation or prospect of any change for the present.

### HOURS OF WORK.

The official working week is one of 48 hours, but in districts of little importance at some distance from the capital of the Province and in almost all industrial centres outside the Province of Catalonia there exists an agreement between the employers and operatives in virtue of which the working week is actually between 54 and 60 hours.

### DEMAND.

The demand for goods is now at a standstill. Stagnation affects at most about 40 per cent. of the production with a tendency to increase. Amongst the principal causes of the dullness of trade, the following deserve mention :

1. The reduced consuming capacity of the country owing to the general depression of business and to the losses suffered in and after the year 1921.
2. The disproportion existing between wages, especially agricultural wages, and the cost of living. In consequence of this, the agricultural worker does not possess any margin for expenditure on clothing.
3. The depression in the world's economic situation causing a suspension of Spain's foreign trade. The present industrial crisis has inevitably forced down sale prices in order to enable the sale of current production, leaving a profit which scarcely covers general costs, and in some cases of sales from stock, leaves no profit at all.

#### PROSPECTS.

As long as these conditions persist, prosperity is improbable, but at the same time a general deterioration is not looked for unless new difficulties arise.

### SWITZERLAND.

#### WAGES.

No important changes have taken place. The number of those establishments which, by special permission, are allowed to work 52 instead of 48 hours a week, has, however, somewhat increased, and resulted in a corresponding increase in the wages of the workers in those establishments.

#### DEMAND.

The demand, on the whole, is fairly satisfactory.

#### HOURS OF WORK.

Of 118 firms at the beginning of the period under consideration, 65 were in possession of special permissions to work 52 hours a week, and at the end their number had increased to 70. We must, however, state that the workers strive to frustrate the granting of such special permission for a 52-hour week.

#### STATISTICS OF EXPORTS AND IMPORTS FOR SWITZERLAND.

	IMPORTS		EXPORTS	
	Cwts.	Francs	Cwts.	Francs
1913				
Cotton yarn ..	38,869	22,961,150	36,534	16,560,849
Cotton cloths ..	69,880	40,818,450	40,831	30,082,883
Hosiery ..	456	1,755,319	83,260	193,436,802
1922				
Cotton yarn ..	40,278	45,050,000	61,445	46,821,000
Cotton cloths ..	46,889	49,970,000	62,992	112,983,000
Hosiery ..	166	506,000	32,108	131,779,000
1923				
Cotton yarn ..	40,668	39,182,000	40,987	34,745,000
Cotton cloths ..	57,091	59,163,000	53,745	102,497,000
Hosiery ..	216	659,000	35,248	140,783,000

*The following is the original article in German.*

### SCHWEIZ.

#### LÖHNE.

Wesentliche Änderungen sind nicht eingetreten. Die Zahl derjenigen Betriebe, die aufgrund von Ausnahmebewilligungen 52 Wochenstunden statt 48 Wochenstunden arbeiten, hat aber etwas zugenommen;

in diesen Betrieben ergiebt sich eine entsprechende Lohnerhöhung der Arbeiter.

#### NACHFRAGE.

Diese ist im Allgemeinen ziemlich befriedigend.

#### ARBEITSZEIT.

Von 118 Betrieben besassen zu Anfang der Berichtsperiode 65 die Ausnahmsbewilligung für die 52 Stundenwoche; bis zum Ende steigerte sich die Zahl der Betriebe auf 70. Es ist aber zu konstatiren, dass die Arbeiterschaft die Erteilung der Bewilligungen für die 52 Stundenwoche zu hintertreiben sucht.

#### EXPORT UND IMPORT-STATISTIK FÜR DIE SCHWEIZ

		IMPORT		EXPORT	
		Quintal	Franken	Quintal	Franken
1913					
Baumwollgarne	...	38,869	22,961,150	36,534	16,560,849
Baumwollgewebe	...	69,880	40,813,450	40,831	30,082,383
Stickereien	...	156	1,755,319	83,260	193,436,802
1922					
Baumwollgarne	...	40,278	45,050,000	61,445	46,321,000
Baumwollgewebe	...	46,889	49,970,000	62,992	112,933,000
Stickereien	...	166	506,000	32,108	131,779 000
1923					
Baumwollgarne	...	40,668	39,182,000	40,987	31,745 000
Baumwollgewebe	...	57,091	59,163,000	53,745	102,497,000
Stickereien	...	216	659,000	35,243	140,783 000

#### U.S.A.

No official reports are received from trade organizations in the U.S.A. As far as can be gathered from the American Press the cotton industry of New England is undergoing a period of depression, while even in the southern States there is said to be a certain proportion of short-time working among cotton spinners. According to *Commerce and Finance*, Fall River mills are reported to be down to 20 or 25 per cent. of their normal activity and the official estimates of spindle activity are admittedly an inadequate measure of present curtailment. The retail trade in cotton goods has not been too good and cloth produced has not moved quickly away from manufacturers' warehouses. This condition of affairs has naturally been one of the most potent factors in depressing raw cotton prices, and the market has entirely ignored the statistics of consumption. In the first seven months of the season U.S. mills consumed nearly  $3\frac{1}{2}$  million bales of American cotton, and on February 29 they held  $1\frac{1}{2}$  million bales in stock. The rate of consumption is admittedly dwindling. Whether the prevailing curtailment is on a sufficient scale to keep prices at their present level is too difficult a question to answer at the present date, March 24, 1924.

There has been considerable agitation in Massachusetts against the 48-hour law, which makes it difficult for mills within the State to compete with products from the other States of the Union. Nevertheless, the Massachusetts Legislative Committee on Labour and Industry has voted against repeal of the 48-hour law for women and children and also against any temporary suspension.

*Mr. C. T. Revere, writing under date 22nd March, in Messrs. Munds & Winslow's weekly report, states :*

" Thus far it is the prevailing opinion that dry goods will continue to act as a bearish factor on cotton. We are not so sure of this. Although it is impossible to speak of the situation in the finished product with optimism, we believe that a substantial change for the better is near at hand. One merchant of wide experience, with whom we have talked, puts the position as follows : ' A month ago we were unable to sell goods at any price ; now, we can sell them at least at a loss.' At any rate, goods are moving. Accumulations, according to our information, are not as large as have been reported. To adopt the characterization of one of our sources of information, dry goods have at last entered the twilight zone of improvement. Daylight is appearing on some lines. A few prices show a profit above all costs. In most cases there is a profit above manufacture, but a loss where all items of costs are carefully computed. In a few cases, hardly important in the aggregate, there is an actual loss on the manufacturing operation, including, of course, the cost of raw material.

" This is the economic side of the mill position. It is far from as hopeless as it has been considered. There are certain technical aspects that might furnish occasion for pronounced strength in the contract markets. There seems to be little doubt that manufacturers not only have deferred the fixing of prices on their end-season requirements, but that they also have ' protected ' themselves by sales of contracts against stocks of cotton and goods. Not until later in the season will it be possible to determine the extent of these commitments. So long as the market is sluggish and reactionary, this phase of the situation might as well be dismissed. Quite another story might be told if delay to the new crop should give rise to serious misgivings. A short interest of this character is not easily disturbed, but once the momentum of covering is under way it provides a buying power of major potentiality."

## GERMANY

The following review of the German cotton industry appeared in the *Manchester Guardian Commercial* :

Berlin, March 7.

Fluctuations on foreign markets have induced German spinners to be more cautious in their purchases of raw materials. Up to the end of February 741,497 bales of North American cotton were imported at Bremen since the beginning of the season, compared with 605,228 bales last year. Stocks amounted to 74,000 bales of North American cotton, compared with 68,000 bales last year. The tone of the wool markets in Germany remains firm, and noils in particular are in good demand. The difference of tone in the world's cotton and wool markets is reflected in the trade of all German textile industries.

There is certainly a brisk demand for all kinds of cotton goods in the country, the stabilization of the mark and the rise in cotton goods having induced the public to buy, and merchants' stocks are in need of replenishment. The movement is, however, restricted by the great shortage of money which is evident everywhere. Complaints have lately

been raised against the excessively high German prices for cotton goods.

Prices for cotton cloths and cotton goods are now 150 to 200 per cent. above pre-war rates in Germany, and are still considered too high by the trade. Manufacturers are accused of using their influence to prevent the import of foreign textiles and of demanding increases in the duty on imported yarns, while they have themselves been exporting at rates considerably below internal prices. They are also said to work on such high margins that they have to resort to a restriction of production and sales. Manufacturers retort that the shortage of capital has prevented them from working at full output, and that they have been forced to resort to unprofitable export trade in order to cover their needs of foreign bills to finance purchases of raw materials.

These difficulties have to a certain extent affected the business of cotton goods manufacturers at this year's spring fairs. In Leipzig, in particular, a good many buyers at home and from abroad considered prices of cotton goods too high, and satisfactory orders were only booked by manufacturers who could offer at fairly low prices and with quick delivery for payment in 30 days.

#### POLISH HEADWAY.

The shortage of capital prompted buyers to go in for the lighter qualities to a great extent, while one of the characteristics of the first months of the stabilization period has been the insistence upon good quality. German textiles can hardly compete in the world's markets now. In the Balkans they cannot face British, Italian or Czecho-Slovakian competition. Buyers from the Border States point to the cheap prices of Lodz, the Polish Manchester. It seems that Lodz has made a good deal of headway. Germans have lately had an unfortunate experience, especially in Lithuania. They dispatched goods against documents, but owing to the trade slump there they had to take them back after six months at considerable expense. Similar complaints are voiced by exporters of clothing to Lithuania.

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## CHINA

No report has been received from the Chinese Cotton Mill Owners' Association. The following is a review of cotton market conditions, extracted from the *Manchester Guardian Commercial* :

Shanghai, February 25.

The market is now coming gradually to life after the Chinese New Year holidays, but there is yet little evidence of the infusion into it of a higher degree of vitality than marked the closing operations of last year. Stocks of all commodities are low, 50 per cent. to 75 per cent. under their usual figure, but the reaction that would normally take place is being postponed indefinitely; at any rate it would not be safe to prophesy a recovery just yet.

The influences that are retarding recovery are, on the one hand, the high replacement cost of foreign imported goods, and, on the other hand, the disturbed condition of China as a whole. The consequences of high replacement cost are twofold and depend on each other. First, dealers are limiting their commitments in imported textiles to a minimum; secondly, the volume of cheap locally-made goods has increased enor-

mously, especially sheetings, drills, jeans and cotton yarns, the weaving, dyeing and finishing of which is improving steadily.

This state of things would undoubtedly be temporary but for the second influence above mentioned, for dealers will always hold out against increased prices and protest their ability to do without goods, but in the ordinary way the first sign of a renewed demand consequent on such depletion of stocks will see the difference in price slowly but surely bridged. High cost, however, coupled with the existing state of insecurity and misgovernment throughout China, is quite another story, and it is certain that until some radical improvement takes place in the country dealers will continue to observe the greatest caution.

No dealer dare risk attracting attention up-country with big cargoes ; his profits, and more, would vanish with speed and certainty into the pockets of a swarm of robbers, both official and unofficial. He is reduced to shipping a few bales at a time, and even so he will not escape the universal "squeeze." It is, therefore, of vital importance to one of Great Britain's leading industries that China should either come, or be brought, to herself without delay, for there would then be the high cost alone in the way of a speedy trade revival, and experience has shown that difficulties of the kind are not insurmountable.

The market is merely marking time, waiting for better conditions, for it is a significant fact that, in the face of all disabilities, there has been no serious decrease in the volume of cotton goods actually taken up by the country ; therefore it is reasonable to infer that with the return of settled conditions not only would there follow an appreciable shrinkage in the mass of home-made substitutes with which the demand is being eked out, but the ratio of increase in consumption would at once tend to expand and make up for lost time. The situation is essentially one for the Government at home to interest itself in, and no opportunity should be lost of presenting in its proper light the real benefit to British enterprise of a secured outlet for its textile products in the Chinese market.



# Trade Statistics.

## EXPORTS AND IMPORTS OF COTTON CLOTH AND YARN FROM AND INTO U.S.A.

Articles, and Countries to which Exported.	Unit of Quantity	Twelve months ending December.			
		1922		1923	
		Quantity	Value	Quantity	Value
<b>EXPORTS.</b>					
Unbleached ..	sq. yd.	177,172,182	\$ 19,296,926	103,286,881	\$ 13,731,328
Includes exports to the following:					
Canada .. .. ..		8,300,623	801,379	6,322,361	965,800
Salvador .. .. ..		7,611,155	698,358	8,063,226	881,598
Other Central America States .. .. ..		13,804,007	1,358,942	12,013,798	1,534,309
Chile .. .. ..		15,667,843	1,797,604	11,820,000	1,804,812
Colombia .. .. ..		8,314,138	861,207	6,430,283	801,705
Aden .. .. ..		12,888,844	1,243,378	6,480,654	882,688
Bleached .. .. ..	sq. yd.	99,681,730	13,871,473	77,635,957	12,287,691
Includes :					
Canada .. .. ..		10,161,753	1,381,554	7,531,859	1,157,472
Central America .. .. ..		6,531,332	870,506	4,252,052	681,820
Mexico .. .. ..		6,014,204	999,857	3,901,067	726,002
Cuba .. .. ..		8,828,396	1,158,001	16,323,931	2,478,461
Haiti .. .. ..		2,015,895	281,648	2,223,363	358,528
Philippine Islands .. .. ..		37,569,717	5,119,904	29,699,843	4,579,743
Printed .. .. ..	sq. yd.	113,319,448	14,802,468	102,202,243	15,198,072
Includes :					
Canada .. .. ..		9,814,637	1,751,170	6,397,910	1,333,242
Central America .. .. ..		14,556,283	1,789,304	11,070,452	1,521,786
Mexico .. .. ..		4,839,287	926,950	4,575,780	912,271
Cuba .. .. ..		21,166,670	2,420,566	27,577,193	3,837,219
Colombia .. .. ..		11,971,884	1,400,288	7,833,422	1,002,693
Philippine Islands .. .. ..		23,371,520	2,685,690	21,922,618	2,772,378
Pleated dyed .. .. ..	sq. yd.	101,467,669	18,111,287	90,577,461	19,679,792
Includes :					
Canada .. .. ..		17,241,038	3,810,483	11,878,270	2,721,098
Central America .. .. ..		10,256,491	1,716,626	8,336,864	1,643,571
Cuba .. .. ..		11,611,416	1,036,094	24,965,175	4,601,356
Argentina .. .. ..		13,024,738	2,342,781	6,548,440	1,220,982
Chile .. .. ..		5,286,186	795,626	7,345,902	1,204,036
Philippine Islands .. .. ..		7,685,738	1,355,716	8,215,867	1,533,074
Yarn or stock dyed .. .. ..	sq. yd.	84,911,800	14,789,205	72,662,000	14,353,149
Includes :					
Central America .. .. ..		8,009,780	1,395,527	7,211,116	1,299,523
Cuba .. .. ..		4,355,963	731,030	12,022,027	2,227,590
Dominican Republic .. .. ..		3,508,680	518,515	5,305,860	966,531
Haiti .. .. ..		9,386,249	1,502,192	9,403,585	1,932,500
Colombia .. .. ..		6,693,310	1,173,921	3,417,641	603,014
Philippine Islands .. .. ..		14,138,223	2,193,906	9,466,400	1,621,581
Cotton wearing apparel (total) .. .. ..		-	23,608,518	-	25,657,691
<b>IMPORTS.</b>					
Cotton manufactures (total) .. .. ..		-	87,069,809	-	100,154,179
Waste .. .. .. .. free ..	Pound	28,399,261	2,874,371	77,022,332	6,727,755
Yarns and warps .. .. .. dut..	"	"3,585,792	"4,005,536	--	--
Not bleached, dyed, coloured, etc. ..	dut..				
Bleached, dyed, coloured, combed, or plied .. .. .. dut..	"	155,082	112,463	627,274	415,474
Sewing thread, crochet, darning and knitting cotton .. .. .. dut..	"	1,686,113	11,920,544	4,642,080	5,261,412
Cotton cloth (total) .. .. ..	sq. yd.	100 yds.	51,808,837	2,753,007	42,326,041
Not bleached .. .. .. dut..	"				
Imported from :					
France .. .. ..	"	"	"	"	167,718
Switzerland .. .. ..	"	"	"	"	1,140,468
United Kingdom .. .. ..	"	"	"	"	16,798,941
Other countries .. .. ..	"	"	"	"	180,259

\* January 1 to September 21, 1922.

† Beginning September 22, 1922.

## IMPORTS OF MERCHANTISE, ETC.—Continued.

Articles, and Countries from which imported	Unit of Quantity	Twelve months ending December.			
		1922		1923	
		Quantity	Value	Quantity	Value
Bleached	sq. yd.	—	\$ 3,068,135	—	\$ 3,866,394
Imported from:					
France	..	—	—	—	132,851
Switzerland	..	—	—	—	797,107
United Kingdom	..	—	—	—	2,551,335
Japan	..	—	—	—	107,529
Other countries	..	—	—	—	107,572
Coloured, dyed, printed, etc., and woven-figured	dut.	—	25,071,930	—	25,204,253
Imported from:					
France	..	—	—	—	2,674,066
Switzerland	..	—	—	—	989,893
United Kingdom	..	—	—	—	18,207,177
Japan	..	—	—	—	1,735,162
Other countries	..	—	—	—	1,817,935
Cotton fabrics, n. e. s.:					
Damasks and manufactures of	dut.	Pound	↑42,737	↑73,922	295,964
Pile fabrics and Terry-woven			—	254,887	370,667
fabrics	..	..	—	—	899,837
Tapestries and other Jacquard-woven upholstery goods	dut.	..	—	1,145,595	734,838
Knit fabrics	..	..	↑6,794	↑14,141	24,641
Wearing apparel (total)	..	..	—	12,944,425	—
					12,268,603

\* January 1 to September 21, 1922.

† Beginning September 22, 1922.

## EXPORTS OF BRITISH COTTON GOODS IN 1923

Yarn in thousands of lbs.	Piece Goods in thousands of square yards					
	Grey	White	Printed	Dyed and Coloured	Total Piece Goods	Total in 1922
Germany	25,483	20,765	840	324	1,067	22,997
Switzerland	6,551	111,216	2,505	1,110	3,001	117,834
Netherlands	34,233	17,588	6,222	5,581	8,942	38,535
Turkey	1,329	17,501	31,778	17,950	18,084	56,315
Egypt	1,014	52,015	62,476	39,507	53,293	207,392
Dutch East Indies	582	18,899	50,951	38,392	33,037	138,290
China	531	56,391	86,573	14,920	76,814	231,710
U.S.A.	5,411	112,084	12,122	5,831	44,884	174,922
Chile	—	2,731	20,873	9,730	17,381	50,517
Argentina	3,535	16,612	65,023	29,741	61,933	173,209
British West Africa	—	6,968	31,905	34,085	32,099	105,959
British South Africa	—	4,478	31,023	17,672	31,588	74,737
Iraq	—	370	34,039	38,935	24,173	97,817
Bombay via Karachi	752	10,483	145,823	40,058	24,371	220,686
Bombay via other ports	8,276	47,132	98,885	64,724	45,144	253,384
Madras	5,976	47,469	29,828	8,900	2,897	89,096
Bengal and Assam	5,155	584,869	137,476	39,637	37,220	799,203
Straits Settlements	444	15,409	83,052	14,261	14,902	77,625
Australia	—	22,598	52,105	21,810	75,224	171,287
Canada	1,869	6,724	12,973	16,038	19,572	54,303
Totals	145,019	1,301,681	1,276,794	632,769	930,108	4,141,808
Totals in 1922	201,933	1,521,651	1,813,488	541,754	806,834	4,183,729

## COTTON YARN EXPORTED FROM THE UNITED KINGDOM.

		Per Board of Trade Returns (In lbs.)		Jan / Feb inclusive	
		Month ended 29th January	1923	1924	1923
Sweden .. .. .	182,800	189,500	320,100	424,000	
Norway .. .. .	209,200	233,100	407,800	478,700	
Denmark .. .. .	124,700	124,600	238,700	296,300	
Poland (including Dantzig) .. .. .	47,000	78,300	115,400	170,500	
Germany .. .. .	3,304,400	1,738,800	5,342,700	4,167,200	
Netherlands .. .. .	8,278,900	2,553,800	5,941,400	6,311,300	
Belgium .. .. .	516,200	351,500	988,500	779,000	
France .. .. .	617,800	269,900	1,160,200	616,400	
Switzerland .. .. .	740,100	470,400	1,485,400	995,400	
Austria .. .. .	168,200	7,000	247,300	25,400	
Bulgaria .. .. .	205,300	377,200	846,000	702,300	
Roumania .. .. .	232,400	62,900	394,000	228,900	
Turkey .. .. .	39,900	128,800	91,000	189,700	
Egypt .. .. .	51,700	181,700	104,000	313,400	
Dutch East Indies .. .. .	50,600	29,600	88,200	60,100	
China (including Hong Kong) .. .. .	81,600	28,400	170,300	41,000	
United States of America .. .. .	340,000	585,400	652,900	1,248,000	
Argentine Republic .. .. .	282,800	497,200	506,600	934,800	
British India—					
Bombay—via Karachi .. .. .	66,500	45,900	108,000	105,600	
Other ports .. .. .	678,200	507,400	1,154,400	798,800	
Madras .. .. .	553,300	575,600	940,400	1,012,700	
Bengal, Assam, Bihar and Orissa .. .. .	359,700	309,900	712,200	624,200	
Burmah .. .. .	99,100	29,400	148,000	87,300	
Straits Settlements and Malay States .. .. .	79,900	19,900	92,100	55,500	
Canada .. .. .	180,100	188,000	280,500	288,700	
Other countries .. .. .	1,691,500	1,852,900	3,128,000	2,739,600	
Total .. .. .	14,121,900	10,881,600	25,118,400	23,696,300	
Total of Grey .. .. .	12,279,200	9,375,200	21,926,000	20,742,800	
Total of Bleached and Dyed .. .. .	1,842,700	1,506,400	3,187,400	2,953,500	
Total .. .. .	14,121,900	10,881,600	25,118,400	23,696,300	

## COTTON MANUFACTURES EXPORTED FROM THE UNITED KINGDOM.

Includes	Month ended 29th February		Jan / Feb inclusive	
	1924	1923	1924	1923
Germany .. .. .	5,884,300	2,153,400	7,606,200	5,537,000
Netherlands .. .. .	4,925,200	4,088,500	9,100,700	8,990,300
Belgium .. .. .	4,537,000	2,786,700	8,602,900	6,863,400
Switzerland .. .. .	17,058,800	9,619,200	31,198,800	21,462,200
Greece .. .. .	4,596,100	2,798,400	7,801,800	4,572,400
Roumania .. .. .	2,798,100	2,259,700	8,952,000	4,611,000
Turkey .. .. .	9,791,200	8,398,400	18,787,900	6,091,300
Syria .. .. .	8,717,100	8,243,100	5,898,000	4,007,900
Egypt .. .. .	20,807,400	17,747,500	88,830,000	30,434,100
Morocco .. .. .	2,899,400	952,200	5,585,100	3,787,100

[Continued on next page.]

*Continued from previous page]*

	Month ended 29th February		Jan /Feb. inclusive	
	1924	1923	1924	1923
Foreign West Africa ..	4,468,300	3,827,500	9,618,700	8,678,700
Foreign East Africa ..	1,016,900	200,900	1,583,800	672,000
Persia .. ..	1,369,100	1,837,400	2,395,500	3,526,100
Dutch East Indies ..	14,100,800	12,507,600	28,341,100	23,029,900
China (including Hong Kong)	31,659,500	15,998,700	61,203,400	33,783,200
Japan .. ..	1,943,600	575,000	4,076,600	1,606,500
United States of America ..	16,604,800	14,765,600	34,187,600	28,070,900
Central America .. ..	1,421,300	932,700	2,977,800	2,014,700
Colombia .. ..	1,822,600	3,762,200	3,827,200	7,943,200
Chile .. ..	2,196,000	3,159,500	5,168,700	8,668,200
Brazil .. ..	2,388,600	2,759,800	4,938,200	6,256,600
Uruguay .. ..	1,659,400	1,158,200	2,969,000	2,182,800
Argentine Republic .. ..	9,212,100	12,104,900	17,881,700	28,245,200
British West Africa ..	6,974,900	9,204,800	12,077,800	18,120,500
British South Africa ..	6,488,000	5,670,600	12,623,700	11,470,800
British East Africa ..	1,377,900	1,739,600	3,176,300	3,382,200
Iraq .. ..	9,403,300	11,225,500	15,181,800	19,348,900
British India:				
Bombay, via Karachi ..	16,407,100	10,874,000	31,464,800	47,566,200
Other Ports ..	19,461,500	12,357,600	33,854,700	38,947,600
Madras .. ..	8,083,000	6,128,000	14,557,800	15,516,500
Bengal, Assam, Bihar and Orissa .. ..	85,239,400	82,615,300	179,662,500	181,183,900
Burma .. ..	6,555,500	5,280,600	10,107,600	10,988,700
Straits Settlements and				
Malay States .. ..	5,882,200	3,959,300	10,808,600	11,965,600
Ceylon .. ..	1,258,800	3,489,500	2,218,600	7,119,800
Australia .. ..	15,804,800	14,002,800	27,200,800	34,598,900
New Zealand .. ..	2,412,300	2,982,400	4,816,200	6,355,600
Canada .. ..	5,935,000	5,708,200	10,862,500	12,676,000
Total of grey or unbleached	128,980,800	116,750,400	254,996,200	250,581,900
Piece goods, white—bleached	122,578,400	99,548,700	281,081,300	222,066,600
Total of piece goods, printed	63,540,900	54,266,000	111,255,700	118,477,300
Total of piece goods dyed or manufactured of dyed yarn	82,025,600	71,998,400	153,702,900	156,420,900
Total of piece goods of all kinds	397,070,200	342,558,500	731,086,100	742,546,700

### IMPORTS OF COTTON AND COTTON GOODS INTO BRITISH INDIA, CALENDAR YEAR 1923.

	1921	1922	1923
Raw Cotton (tons)—	.	.	.
From United Kingdom ..	17,840	8,140	32
,, Kenya Colony ..	7,404	6,281	9,522
Total .. ..	27,168	12,281	12,179
Twist and Yarn (lbs.)—			
Grey .. .. ..	85,626,822	51,949,240	35,242,439
White .. .. ..	2,142,799	2,287,868	2,438,626
Coloured .. .. ..	10,678,512	8,086,747	7,952,218
Total .. .. ..	49,214,056	68,647,907	47,873,082
Piece goods (yds.)—			
Grey .. .. ..	659,248,686	828,411,101	724,248,720
White .. .. ..	291,885,933	382,781,134	409,288,751
Coloured .. .. ..	196,573,498	202,974,661	338,777,921

## IMPORTS OF COTTON GOODS INTO BRITISH INDIA.

## YARNS

	Quantity		
	1921	1922	1923
Total grey yarns in lbs . . .	35,626,822	51,919,210	35,242,489
Total coloured in lbs . . .	10,673,512	8,086,717	7,952,218
Total white (bleached) . . .	2,142,790	2,287,363	2,438,626
Mercerised cotton yarn in lbs . .	732,041	1,311,203	1,734,180
Unspecified descriptions in lbs . .	38,882	63,354	5,619
Total of twist and yarn in lbs . .	49,214,056	63,617,907	47,873,082
Total of twist and yarn . . . lbs			
From United Kingdom . . . . .	32,652,079	40,314,651	19,833,849
" Switzerland . . . . .	737,670	769,034	850,854
" China (including Hong Kong) . . . . .	485,400	84,430	147,610
" Japan . . . . .	14,375,307	21,500,529	25,045,930
" Other countries . . . . .	692,991	979,268	1,494,889
Total . . . . .	49,214,056	63,617,907	47,873,082

## COTTON PIECE GOODS

	Quantity		
	1921	1922	1923
Grey.			
From United Kingdom . . . yds	588,307,021	742,106,357	622,608,585
" Aden & Dependencies . . .	8,261,140	251,250	35,080
" China (including Hong Kong) . . . yds	346,811	1,524,213	4,442,862
" Japan . . . . .	104,029,254	76,553,590	95,988,498
" U.S.A. . . . .	18,082,488	7,796,200	583,095
" Other countries . . . . .	222,472	176,482	568,605
Total . . . . .	659,248,686	828,411,101	724,248,720
White (bleached)			
From United Kingdom . . . yds	281,387,442	376,923,350	398,818,997
" Netherlands . . . . .	4,509,864	3,094,035	3,640,620
" Switzerland . . . . .	382,628	555,654	3,250,029
" Japan . . . . .	1,909,579	1,702,832	2,561,484
" U.S.A. . . . .	19,966	62,712	28,657
" Other countries . . . . .	426,450	412,571	983,964
Total . . . . .	291,835,933	382,781,154	409,283,751
Coloured, (printed or dyed)			
From United Kingdom . . . yds	178,219,603	175,141,956	298,659,782
" Netherlands . . . . .	8,096,489	9,568,242	7,782,753
" Belgium . . . . .	735,252	141,959	646,702
" Switzerland . . . . .	712,687	1,138,272	2,489,208
" Italy . . . . .	8,341,024	1,706,252	4,666,632
" Straits Settlements (including Labuan) . . . yds	369,154	1,269,105	2,297,966
" Japan . . . . .	4,489,385	18,012,609	20,804,870
" Other countries . . . . .	609,864	996,266	2,180,008
Total . . . . .	196,573,498	202,974,661	388,777,921

**IMPORTS OF RAW COTTON AND YARN INTO  
SHANGHAI.**

	July	August	Sept	October	November	December	Total
<b>1. Raw Cotton (in piculs)*</b>							
From Chinese ports (total) ..	65,183	18,530	21,619	167,932	272,251	228,481	773,946
U S A ..	—	5,520	—	—	4,009	7,987	17,466
Great Britain ..	—	1,178	—	—	—	—	1,178
Japan ..	13,984	17,018	11,098	24,894	6,916	4,818	78,023
India ..	154,408	36,009	25,857	18,449	22,060	8,495	265,278
Egypt ..	—	1,117	—	—	—	—	1,117
Other countries	824	—	590	—	460	3,900	5,774
Total (from foreign countries) ..	169,216	60,842	37,540	42,843	33,443	24,950	368,836
From Hong Kong	—	—	452	637	—	—	1,109
Grand total ..	234,390	79,372	59,611	211,482	305,696	253,381	1,143,891
<b>2. Cotton Waste (in piculs)</b>							
Total (from Chinese ports) ..	201	234	86	113	756	2,327	3,720
<b>3. Cotton Yarn (in piculs)</b>							
Total (from Chinese ports) ..	16	4,983	3,318	2,995	1,806	3,894	20,012
From Japan (17's)	16	3	3	—	3	—	25
" (23's)	41	128	48	163	18	48	446
" (35's)	521	1,511	3	3,137	2,150	1,859	8,681
" (45's)	236	3,897	1,227	1,624	3,260	7,206	16,970
" U S A (17's)	3	—	2,827	—	—	—	2,880
" (23's)	3	—	—	—	—	—	3
" (35's)	—	—	—	2	2	—	4
" (45's and over)	9	—	—	3	—	—	12
" India (23's)	525	225	—	—	—	—	750
" (35's)	—	531	416	529	—	—	1,329
Total (from foreign countries) ..	1,374	5,818	4,554	5,458	5,133	8,613	31,250
From Hong Kong							
(23's)	—	—	—	—	—	1,500	1,500
" (45's Eng.)	150	—	—	—	150	—	300
" (45's Am.)	—	—	—	—	135	153	288
Grand total ..	1,340	10,801	7,872	8,453	10,321	14,160	53,350
<b>4. Cotton Yarn, mercerised, gassed (in piculs)</b>							
From U S A ..	17	—	—	17	—	—	34
" Gt. Britain ..	—	—	2	—	8	30	35
" Japan ..	25	265	291	150	136	158	1,025
Total ..	42	265	298	167	139	188	1,094

\* Picul = 133½ lb.



# American Cotton.

## AMERICAN COTTON CROP, 1923.

The following table is reprinted from the *Manchester Guardian Commercial*:

Bureau Report, December 12. Details by States.  
(000's omitted.)

State	Acreage		Cmp	Yield per acre			
	Planted*	Harvest'd		1923	1922	1921	1920
Virginia.. . .	73	73	50	328	225	280	280
North Carolina .. .	1,685	1,678	1,020	290	250	264	275
South Carolina.. .	2,071	2,080	795	188	128	140	260
Georgia .. . .	3,857	3,433	590	88	100	90	138
Florida .. . .	168	143	12	36	97	80	86
Alabama .. . .	3,268	3,149	600	92	142	124	111
Mississippi .. .	3,589	3,298	615	90	157	148	145
Louisiana .. . .	1,453	1,395	365	125	144	114	126
Texas .. . . .	14,368	14,081	4,290	146	130	98	174
Arkansas .. . .	3,215	3,054	620	97	175	160	195
Tennessee .. . .	1,221	1,167	220	90	190	228	185
Missouri .. . .	877	389	115	162	360	325	275
Oklahoma .. . .	3,582	3,295	620	90	103	104	230
California .. . .	84	85	49	277	200	258	266
Arizona .. . .	132	128	83	311	200	242	224
Others .. . .	84	72	87	246	200	231	252
U.S.A. totals .. .	39,224*	37,420	10,081	—	—	—	—
Averages .. . .	—	—	—	128.8	141.6	124.5	178.4

\* Revised (December 17) from the original figure of 38,287,000.

## NEW CROP REPORTING SYSTEM

The U.S. Department of Agriculture has published a tentative timetable for the publication of condition and acreage reports for the ensuing summer. This list, however, has been rendered useless by the decision of the legislature to reform the existing system of crop reports. Condition reports will in future be issued twice a month from July 1 to December 1. From August 1 the Census Bureau's ginning reports will be issued at the same date as the condition reports and will refer to the

same period of time. Both reports will be issued at 11 a.m. New York time, but the dates of publication are not yet known. There was a recommendation to the effect that reports should be delayed until their accuracy had been tested, and it is known that a committee is to be appointed for the purpose of considering the reliability of reports before publication. The report on "farmers' intention to plant," which was issued last year in March, has been discontinued.

### AMERICAN CROP GINNING REPORTS, 1923-24.

(In Running Bales counting Round Bales as half-bales.)

State	January 10, 1924	Preliminary Final, March, 1924	Preliminary Final, March, 1923
Alabama	595,900	598,000	819,870
Arizona	68,600	78,000	44,182
Arkansas	620,100	642,000	1,010,520
California	45,100	55,000	28,473
Florida ..	13,400	14,000	27,428
Georgia	608,900	612,000	735,874
Louisiana	369,200	374,000	345,407
Mississippi	615,400	622,000	985,787
Missouri	109,800	124,000	139,881
N. Carolina	1,028,900	1,050,000	870,294
Oklahoma	643,800	666,000	637,008
S. Carolina	784,600	793,000	517,464
Tennessee	225,500	234,000	385,860
Texas ..	4,139,700	4,210,000	3,125,758
Virginia..	48,000	52,000	27,011
Other States	28,700	35,000	19,644
Total ..	9,946,400	10,159,000	9,729,306

The total of the 1924 Preliminary Final Report includes 242,000 round bales, 1,000 bales Sea Island, and 22,000 bales American-Egyptian. Last year 5,000 bales Sea Island and 33,000 bales American-Egyptian were ginned. The quantity remaining to be ginned is estimated at 15,000 bales, against 9,000 bales last year, 7,000 bales in 1922, and 212,000 bales in 1921. The average gross weight of the bale is returned at 498·5 lbs., against 501·7 lbs. last year, 498·5 lbs. in 1922, and 506·4 lbs. in 1921.

### EXPORTS OF COTTON FROM U.S.A.

(Including Linters.)

SEASON 1923-24. Seven months ended 29th February.

Country to which Exported to	1924	1923
United Kingdom ..	1,437,116	1,155,367
France ..	557,870	514,854
Italy ..	408,812	368,182
Germany ..	887,516	629,885
Other Europe ..	490,477	512,181
Japan ..	489,384	398,302
All other ..	129,512	160,974
Total ..	4,350,187	3,789,145

NOTE.—Figures include 12,275 bales of linters exported during February in 1924 and 4,925 bales in 1923 and 47,930 bales for the seven months ending February 29 in 1924 and 21,941 bales in 1923. The distribution for February, 1924, follows: U. Kingdom, 776; France, 1,723; Germany, 5,485; Belgium, 2,151; Netherlands, 586; Italy, 728; Canada, 918; Mexico, 11; Australia, 2.

## YIELD PER ACRE AND FARM PRICE OF COTTON, 1922-23.

According to the United States Bureau of the Census, in average yield per acre, cotton production varies greatly among the States. It goes as low as only 40 lbs. of lint in Florida and as high as 325 lbs. in Virginia. Other low yields are 82 lbs. in Georgia, 89 lbs. in Mississippi, 90 lbs. each in Tennessee and Oklahoma, 91 lbs. in Alabama, and 97 lbs. in Arkansas. Among the other high yields per acre, compared with those of other States, are 290 lbs. in North Carolina, 187 lbs. in South Carolina, 162 lbs. in Missouri, and 146 lbs. in Texas. The average yield per acre for all cotton States is only 128.8 lbs., comparing with 141.5 lbs. in 1922, and with 124.5 lbs. in 1921, the record lowest.

	Yield per acre		Farm price per lb	
	1923	1922	December 1, 1923	December 1 1922
Virginia ..	325	230	32.0	23.0
North Carolina ..	290	250	30.8	24.5
South Carolina ..	187	123	32.0	24.3
Georgia ..	82	100	32.0	23.9
Florida ..	40	102	28.8	23.0
Alabama ..	91	142	31.8	24.0
Mississippi ..	89	137	32.5	24.1
Louisiana ..	125	144	30.3	24.0
Texas ..	146	130	30.4	23.5
Arkansas ..	97	173	31.9	23.6
Tennessee ..	90	190	32.0	24.5
Missouri ..	162	360	32.5	21.5
Oklahoma ..	90	103	29.6	23.0
California ..	277	188	32.0	26.0
Arizona ..	311	222	34.0	30.0
All other ..	244	208	31.0	25.0
United States total ..	128.8	141.5	31.0	23.8

## PREPARATIONS FOR THE 1924 CROP.

Private estimates of acreage issued to date are as follows : Southern Products Co., 3.4 per cent. increase; Watkin's Bureau, 3.6 per cent. increase; Miss Giles, 5 per cent. increase.

The report of the U.S. Weather Bureau for the week ending March 25 states that unseasonably cool weather in the Southern States was unfavourable for farm work. Rainfall was only moderate in many districts, but, with the weather mostly cloudy, the soil was too wet to work, except in a few of the Central and West Gulf sections. The soil was in fair condition in Southern Texas, though generally planting is backward. Little farm work was possible in Oklahoma and Arkansas, where spring activities are much behind. No cotton has been planted in Georgia, and the season in the eastern belt is two to three weeks late.

*Mr. C. T. Revere, writing under date 22nd March, 1924, in Messrs. Munds & Winslow's weekly report, states :*

"Comment on the new crop at this time is largely conjectural. The impression prevails that there will be an increase in acreage of 3 to 5 per cent. Fertilizer sales may run as high as 10 per cent. over last year, although current estimates are somewhat below this suggestion. Weevil survival, according to the report from the Tallulah Laboratory, is at the rate of one weevil to 2 tons of Spanish moss, compared with 19 weevils to 1 ton of moss last year, and a previous minimum of 1·7 weevils in 1918. Optimism over the weevil outlook should be reserved until we see what sort of start the crop gets, and, moreover, until we find out whether July and August weather east of the Mississippi is rainy or dry.

"Texas has had a good 'season in the ground.' Nevertheless, preparations are far behind, not only in the south-west but elsewhere. There is serious danger that the land will be poorly prepared, the seed planted in cold, soggy ground, and that much re-planting may be necessary. With reserves reduced to a minimum the contract market cannot stand another short crop, no matter how confident our pessimists may be about the unwillingness of the world to buy goods."

## NEGRO MIGRATION.

The U.S. Commercial Attaché in London reports that, according to returns to the Department of Labour, 478,700 negroes migrated from the south to the north during the year ending September 1, 1923, of which Georgia lost 120,000, Alabama 90,000, Florida 90,000 and Mississippi 82,600.—(*Manchester Guardian Commercial*, 20th March, 1924.)

## FERTILIZER SALES TO MARCH 1.

The detailed statement of fertilizers sold in the cotton states for the seven months from August to February, both inclusive, officially reported to Secretary Hester by Agricultural Bureaus and State Boards, follows in tons :

				1924	1923	1922
Georgia ..	..	..	..	315,782	438,254	137,586
Alabama ..	..	..	..	219,750	178,128	52,039
S. Carolina ..	..	..	..	370,290	418,199	160,000
Mississippi ..	..	..	..	119,973	119,923	32,133
Arkansas ..	..	..	..	22,303	15,860	29,057
Louisiana ..	..	..	..	86,516	64,762	38,719
Texas ..	..	..	..	70,000	40,216	18,649
Tennessee ..	..	..	..	85,654	25,680	37,588
Total 8 States ..	..	..	..	1,440,268	1,800,972	540,748
Oklahoma ..	..	..	..	2,815	(No record)	
N. Carolina ..	..	..	..		(Not available)	

Charlotte, N.C., press advices state that the movement of fertilizer to the farms continues slow. The farmer is not buying to any great extent and fertilizer dealers are afraid to fill up their warehouses, fearing that the product will be left on their hands.—(*Commerce and Finance*.)

*Mr. C. T. Revere, of Messrs. Munds & Winslow, writes as follows under date March 15, 1924 :*

In so far as current price movements are concerned, not much can be said about the cotton market. Irregular swings without tendency have prevailed, and it may be assumed that the failure of an upward tendency to develop has been more disappointing to the bulls than an absence of further weakness has been to the increasing adherents of the bears. This is a manifestation of normal market psychology, for it is discouraging to see a market in the doldrums after such a drastic decline. Consequently there is a disposition to ignore growing evidences of stability simply because a shell-shocked market has not yet sufficiently recovered its equilibrium to display snap and definite bullish trend.

Meantime, we venture to suggest that nothing has developed in the way of increased supply or curtailed demand to mitigate the rigours of acute shortage before the end of the present season. Thus far we have had talk of short time, as well as some resort to this expedient, to correct an unfavourable goods' situation. In the months to come before the end of the summer we shall see its practice because of the shortage of raw material.

The whole position of the market shows a sharp reversal from conditions prevailing a few months ago. At that time statistics looked impregnable, the economic position of the trade was favourable, but the internal position of the market was building up weakness on account of the unanimity of bullish sentiment. Now we have this state of affairs : superficially the situation may have lost some of its statistical impressiveness ; actually it may not be fundamentally as strong as it was, because of the sluggishness of the goods market ; while technically it is stronger than it has been for months. The bearish factors have been as adequately exploited as the bullish features last November. We are all well aware of the fact that mills cannot sell their goods, while we still have to learn that the understocked retailers of the country must buy. This piece of information may not be conveyed to the trade until prices are considerably higher.

Passing by the speculative short interest, and the bearish sentiment generally prevailing among local and southern operators, one is inclined to wonder how the manufacturers are going to work out their problem. On the broad ground that those who have been caught long do not advertise unfavourable items we believe we may be pardoned if we suspect the validity of the bearish propaganda emanating from some textile quarters. Manufacturers seem more desirous of working out their economic salvation through lower prices for cotton than through higher prices for goods. We do not doubt that some manufacturers have accumulations of the finished product, while others have covered their forward needs in raw material to a greater or less degree.

On the other hand we have ample reason to believe that this state of affairs exists : there is still outstanding a fairly large trade short interest on cotton, with unfixed prices ; there is also a fairly large short interest in contracts against stocks of raw material and accumulations of goods. This is a situation that may easily make for great technical strength and pronounced scarcity of contracts. Moreover, we believe the time is about at hand when the market will begin unmistakably to reflect the changed conditions we have outlined.

*A. Norden & Co., New York, write as follows in their market letter dated March 6, 1924:*

With the probability that supplies at the end of this season will be somewhere around the "irreducible minimum," a reasonable requirement for next year for consumption alone, leaving the world bare of cotton again in August, 1925, would be 12,500,000 bales, while to furnish even a moderate reserve supply against future contingencies another million bales would be very welcome. It is not prudent in the cotton market to say that anything is impossible, but the following table will show that past history does not warrant counting on such results. A crop of 12,500,000 bales would mean an increase over this year of 25 per cent., which has only been seen four times in 30 years, while the requirement for a crop of 13,500,000 bales, or an increase of 33½ per cent., has only been seen three times.

Year	Crop of Year	Bales	Crop of year before	Percentage	
				Increase	Decrease
1894	..	9,901	7,498	32	—
1895	..	7,161	9,901	—	28
1896	..	8,533	7,161	19	—
1897	..	10,898	8,533	28	—
1898	..	11,189	10,898	3	—
1899	..	9,393	11,189	—	16
1900	..	10,102	9,393	8	—
1901	..	9,583	10,102	—	5
1902	..	10,588	9,583	10	—
1903	..	9,820	10,588	—	7
1904	..	18,451	9,820	37	—
1905	..	10,495	18,451	—	22
1906	..	12,983	10,495	24	—
1907	..	11,058	12,983	—	15
1908	..	18,086	11,058	18	—
1909	..	10,078	18,086	—	28
1910	..	11,568	10,078	15	—
1911	..	15,553	11,568	34	—
1912	..	18,489	15,553	—	18
1913	..	18,983	18,489	4	—
1914	..	15,906	18,983	14	—
1915	..	11,068	15,906	—	30
1916	..	11,364	11,068	3	—
1917	..	11,248	11,364	—	1
1918	..	11,906	11,248	6	—
1919	..	11,326	11,906	—	5
1920	..	18,270	11,326	17	—
1921	..	7,977	18,270	—	40
1922	..	9,720	7,977	22	—
1923	..	10,080*	9,720	4	—

\* Bureau Estimate.

We believe the world will soon realize that higher prices will again be seen before long, and we advise buying while the market is in this hesitating mood.





## Egyptian Cotton.

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*J. G. Joannides & Co., Alexandria, report under date 1st March, 1924 :*

NEW CROP. Planting is general in Upper Egypt and the south of Delta, and the weather has been favourable to the germination of the seed. There have been renewed enquiries for Sakel seed, and we believe that some planters have changed their minds as to sowing Zagora and Pilion. Although it is too early to estimate the proportions of the varieties sown, we believe that the Sakel variety will be sown about 15 to 20 per cent. less than last year.

*J. G. Joannides & Co., Alexandria, report under date 7th March, 1924 :*

NEW CROP. Planting is now general all over Egypt and the weather is very favourable ; early sowings have succeeded wonderfully and the young plants are in very good condition. Nevertheless we believe that the average date of sowing is about 10 days late, although last year there was an abnormally large amount of re-sowing.

*Messrs. Reinhart & Co., Alexandria, report under date 6th March, 1924 :*

NEW CROP. The Ministry of Agriculture in their report of February write :

" Preparation of land is actively taking place. In Lower Egypt, Zagora is being sown on a larger scale than last year. A few fields have already been sown and the cotton area is expected to be larger than last year. There is also a tendency towards larger cultivation."

This report is very general, and we wish to be precise concerning the varieties to be planted as far as this is possible at the present time of the season. For the last two years farmers have complained of the low prices obtained for Sakellaridis compared with the shorter styles, the cost of production of the latter being from 30 to 35 per cent. less. The reduction in acreage of Sakellaridis during the last two seasons was, however, of much less importance than anticipated. Judging from this year's sales of tagawi seed, only about 40 per cent. of the land will be planted in Sakellaridis. Taking a maximum acreage of two million acres, compared with 1½ million last year, the area under Sakellaridis will be about

800,000 feddâns against 1,360,000 last season. This would mean a crop of about 340,000 bales against 600,000 last season. These figures lack confirmation for the present, but it is quite certain that a drastic reduction is taking place. Under these circumstances Ashmouni and Zagora will be very abundant next year, and the parity between these varieties and Sakellaridis, which is at present about \$5 for New Crop, may still further increase.

NUMBER AND WEIGHT OF BALES OF COTTON STEAM-PRESSED TO DATE IN COMPARISON WITH THE COTTON SEASON 1922-1928.

PERIODS	COTTON SEASON, 1922-1923				COTTON SEASON, 1923-1924				Difference in Cantars + or - in the Season 1923-24	
	Number of Bales Steam-pressed		Weight in Cantars		Number of Bales Steam-pressed		Weight in Cantars			
	During Week	From the beginning of the Season	During Week	From the beginning of the Season	During Week	From the beginning of the Season	During Week	From the beginning of the Season		
From										
Sept. 1-Dec. 28 ..	—	439,847	—	3,337,425	—	447,659	—	3,401,747	+ 84,322	
Dec. 29-Jan. 4 ..	22,680	462,527	171,150	3,508,575	20,147	487,808	152,038	3,553,783	+ 45,208	
Jan. 5- " 11 ..	25,338	487,865	191,350	3,690,034	28,571	496,377	216,159	3,769,942	+ 70,009	
" 12- " 18 ..	24,556	512,421	186,601	3,885,535	23,241	519,618	175,480	3,945,422	+ 59,887	
" 19- " 25 ..	30,389	542,810	328,812	4,114,347	22,698	542,816	171,765	4,117,177	+ 2,830	
" 26-Feb. 1 ..	31,174	573,084	235,435	4,340,782	21,087	563,403	159,717	4,276,891	- 72,888	

SOURCE OF INFORMATION : *Egyptian Monthly Agricultural Statistics.*

EXPORTS OF COTTON UP TO DATE CLASSIFIED BY COUNTRIES OF DESTINATION.

(Quantities expressed in Cantars.)

Countries of Destination	From September 1 up to December 31			During January			Total to date.				
	1921-1922		1922-1923	1923-1924	1922		1923	1924	1921-1922	1922-1923	1923-1924
United Kingdom	1,130,237	1,400,854	1,752,618	243,927	377,830	447,383	1,383,164	1,778,688	2,200,001		
British India	—	—	4,237	450	—	3,070	450	—	—	7,307	
Austria ..	8,487	1,620	18,014	2,570	—	3,012	11,057	1,620	21,028		
Belgium ..	7,399	13,006	40,422	811	3,344	5,996	8,210	16,350	46,418		
China ..	2,476	—	—	624	3,202	—	3,100	3,292	—	—	
Czecho-Slovakia ..	23,485	4,075	59,007	7,637	3,592	16,290	31,122	7,667	75,887		
France ..	219,768	326,805	408,527	67,064	84,667	103,352	286,832	411,472	571,879		
Germany ..	100,569	70,246	105,076	28,823	24,512	37,700	127,392	108,758	142,778		
Greece ..	1,826	4,410	3,061	610	641	340	2,436	5,061	3,401		
Holland ..	5,854	18,046	12,742	911	1,495	6,787	6,765	19,541	19,529		
Italy ..	60,251	135,273	203,893	16,018	46,101	52,521	86,169	181,374	256,414		
Japan ..	76,132	104,870	137,420	18,224	62,061	26,317	89,356	166,841	163,731		
Palestine ..	2,138	2,152	286	76	266	—	2,209	2,418	286		
Poland ..	2,454	11,128	16,910	467	7,311	6,286	2,921	18,439	23,196		
Portugal ..	3,764	1,309	3,034	—	1,528	459	3,764	2,837	3,493		
Spain ..	57,581	97,237	110,427	11,501	41,011	21,018	60,172	138,248	181,445		
Sweden ..	—	1,772	2,073	741	—	—	741	1,772	2,073		
Switzerland ..	83,049	87,670	127,808	15,401	35,200	36,049	98,540	122,879	163,852		
Syria ..	421	76	1	2	12	—	423	88	1		
U.S.A. ..	733,038	920,143	439,631	111,237	275,027	92,192	844,270	1,195,170	531,823		
Other countries ..	1,558	1,434	5,845	—	380	1,568	1,558	1,823	7,413		
Total ..	2,538,477	3,211,088	8,511,117	521,174	968,297	860,340	3,059,651	4,179,383	4,371,457		

SOURCE OF INFORMATION : *Egyptian Monthly Agricultural Statistics.*



# East Indian Cotton.

## CROP FORECASTS

(All-India)

### FINAL GENERAL MEMORANDUM ON THE COTTON CROP OF 1923-24.

(Calcutta, February 21, 1924.)

This memorandum is based on reports received from Provinces and States and refers to the entire cotton area of India. It deals with the final reports on both the early and late crops of the season for all the tracts except Madras. A supplementary report containing the final figures for Madras will, as usual, be issued in April.

The total area now reported is 22,941,000 acres or 5 per cent. above the revised figure of last year. The total estimated yield is 5,042,000 bales of 400 lbs. each, which is 1 per cent. below the revised estimate of yield for last year.

The detailed figures for each Province are stated below :

Provinces and States	ACRS (thousand <sup>s</sup> )		BALES OF 400 LBS (thousand <sup>s</sup> )		YIELD PPR ACRE lbs.	
	1923-24	1922-23	1923-24	1922-23	1923-24	1922-23
*Bombay .. ..	6,291	5,817	1,127	1,328	72	91
Central Provinces and Berar .. ..	4,901	4,857	1,020	1,040	88	86
†Madras .. ..	2,613	2,348	472	431	72	73
†Punjab .. ..	1,914	1,394	628	397	131	114
†United Provinces .. ..	652	652	215	182	132	112
Burma .. ..	297	284	46	45	62	63
Bihar and Orissa .. ..	81	80	16	15	79	75
†Bengal .. ..	71	72	21	17	118	94
Ajmer-Merwara .. ..	41	36	13	15	127	167
Assam .. ..	39	40	14	14	144	140
North-West Frontier Province .. ..	23	15	4	3	70	80
Delhi .. ..	3	2	1	1	183	200
Hyderabad .. ..	3,500	8,813	1,079	1,116	128	117
†Central India .. ..	948	889	162	181	68	81
Baroda .. ..	657	585	76	116	46	79
Gwalior .. ..	500	523	60	74	48	57
Rajputana .. ..	324	302	73	76	90	101
Mysore .. ..	84	88	15	24	71	116
Total .. ..	22,941	21,792	5,042	5,075	88	98

\* Including Sind and Indian States.

† Including Indian States.

‡ Excluding Gwalior, which has been shown separately.

A statement showing the present estimates of area and yield according to the recognized trade descriptions of cotton, as compared with the preceding year, is given below. Of the total yield, Oomras represent 52 per cent., Bengal-Sind 17 per cent., Dholleras 6 per cent., American 5 per cent., Broach and Coompta-Dharwars 4 per cent. each and Tinnevellys and Westerns and Northerns 3 per cent. each.

## TRADE DESCRIPTIONS.

Descriptions of Cotton	ACRFS (thousands)		BALES OF 400 LBS. (thousands)		YIELD PER ACRE lbs.	
	1923-24	1922-23	1923-24	1922-23	1923-24	1922-23
Oomras :						
Khandesh ..	1,394	1,410	284	332	81	94
Central India ..	1,448	1,412	222	255	61	72
Barsi and Nagar ..	1,974	2,180	578	628	117	115
Hyderabad-Gaorani ..	1,400	1,439	500	451	143	125
Berar ..	3,320	3,856	{ 1,020	{ 695	83	{ 88
Central Provinces ..	1,581	1,501				
Total ..	11,117	11,298	2,604	2,706	94	96
Dholleras	1,965	2,014	288	489	59	97
Bengal-Sind :						
United Provinces ..	652	652	215	182	132	112
Rajputana ..	406	396	92	102	91	103
Sind-Punjab ..	1,647	1,295	526	895	128	122
Others ..	85	85	17	16	80	75
Total ..	2,790	2,428	850	695	122	114
American :						
Punjab ..	599	882	284	117	156	123
Sind ..	5	7	3	4	240	229
Broach ..	1,176	1,180	208	281	69	99
Coompta-Dharwars ..	1,501	1,180	221	189	59	67
Westerns and Northerns ..	1,958	1,657	170	167	35	40
Cocanadas ..	254	279	50	55	79	79
Tinnevellys ..	635	{ 1,048	175	141	110	112
Salems ..	176		22	28	50	
Cambodias ..	329		188	180	168	
Comillas, Burmas and other sorts ..	436	419	84	78	77	74
GRAND TOTAL..	22,941	21,792	5,042	5,075	88	93

Messrs. Volkart Bros. of Winterthur have published the following on the Indian cotton situation :

Our Indian houses estimate the Indian crop at about  $5\frac{1}{4}$  million bales, which is considerably less than might have been expected in October-November. Some tracts, especially Gujarat, Broach and the Carnatics, promise but disappointing yields in consequence of a prolonged drought which resulted in the precipitated maturing of the Broach, Western, Coompta and Dharwar crops. The fibre, especially in the case of Broach, is insufficiently developed and a similar fear is entertained for Gujarat, the producer of staple Dholleras. We are, this year, experiencing the most extraordinary coincidence that almost all the crops move at the same time, a circumstance that gives to the outsider the unwarranted

impression of a very heavy total production. Although the arrivals into Bombay have already exceeded half the quantity generally expected for the whole season the Bombay stocks are not bigger than they were at the beginning of the cotton year, when they were at a perilously low ebb. Since September 1, 1,675,000 bales flowed into the Bombay market. Exports during the same period amounted to 1,250,000 bales; and the spinning mills of Bombay Island may well be credited with having used up 400,000 bales till the end of January. During the last fortnight Bombay mills have been idle. Their refusal to pay the customary New Year bonus to their labourers has led to strikes and ultimately to a general lock-out, which apparently is not much to the liking of the mill owners, although business in yarn and textiles has been reported to be very bad since some time. We are considering the respite in the activity of Bombay's industry as a blessing for the Indian cotton position. Already, in our special report of December 21, 1923, we pointed out that the Indian manufacturer has to tackle a very serious problem next spring and summer. According to our calculations Europe will draw from India 1,400,000 bales, whereof four-fifths have probably already been secured. Japan, for whom we had been obliged to calculate but a meagre supply, has meanwhile awakened to the seriousness of the situation and has bought heavily in the Indian market. We should not be surprised at all if Japan and China would take 1½ million bales from India, provided they can obtain them; for Japan's monthly cotton consumption has risen again to 200,000 bales, although her exports of yarn have shrunk considerably, from an average of about 25,000 bales per month early last year to about 10,000 bales each in December, 1923, and January, 1924. Thus Indian export requirements would amount to some 3,150,000 bales and there would be left at India's own disposal 2,100,000 bales only. This is the normal Indian mill consumption and there remain to be satisfied the Indian domestic consumption of about 300,000 bales for home spinning and 400,000 bales for bedding and wadding of garments (about  $\frac{1}{2}$  lb. per head of the population). It may be that India's domestic requirements will be retrenched in consequence of the present high prices, but in any case the mill industry will lack about 25 per cent. of its normal needs; and since India, like America, seems to over-export, the Indian mills will have to bear the consequences.

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### THE BOLL-WEEVIL—INDIAN PRECAUTIONS.

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The damage caused by the Mexican boll-weevil (*Anthonomus grandis*) in America is well known. The attention of the Central Cotton Committee was drawn to the risk that this pest might be introduced to India with baled cotton from America and that this risk is likely to increase as cotton is now shipped direct from the Southern States to India via Japan. The average import of American cotton into India during 25 years has been about 27,000 bales per annum, the imports in individual years varying from 2,000 to over 100,000 bales, the last big importation being in 1920. From information supplied by the Imperial Entomologist and by the Director of the United States of America Bureau of Entomology it seems clear that *unless precautions are taken it will only be a matter of time before the boll-weevil reaches India*. Once introduced there is every reason to believe that it would find conditions eminently suited to its

spread. In America the boll-weevil is credited with the destruction of something like 25 per cent. of the crop. At any rate it seems abundantly clear that the weevil has caused a loss of at least two million bales in the American crop in each of the last two seasons, since comparatively small crops have been produced on what were almost record areas at a time when the high price of cotton gave every incentive to good cultivation and manuring. Despite very heavy expenditure, and under distinctly more favourable conditions than attainable in India, comparatively little has been achieved by way of control.

It is clear that drastic steps would be justified to obviate any risk of this pest being introduced into India and the machinery is already in existence in the Destructive Insects and Pests Act. Mill owners' associations and chambers of commerce were consulted and all agreed that immediate action is desirable. The simplest solution, viz., the total prohibition of the importation of American cotton in India, is undesirable, as in certain years Indian mills need this cotton—particularly when the Indian staple cotton crop is small. Fortunately an alternative exists, as it is possible to prevent the introduction of the pest by adequate fumigation with hydrocyanic acid gas. It is known that this gas destroys the weevil (which can only reach India as the mature beetle) and that this fumigant causes no undesirable effects, American experiments having proved that it affects neither the spinning value of the cotton nor the bleaching and dyeing of the yarn and cloth.

With one exception all American cotton imported into India during recent years has been landed at Bombay, and it is clearly simpler to provide fumigation at one port only. Chambers of Commerce and Mill-owners' Associations agree to the proposed restriction and to fumigation, the cost of which would be paid by the importer. The Central Cotton Committee has asked the Government of India to issue the necessary notification under the Destructive Insects and Pests Act and to provide for fumigation at Bombay. This recommendation has been provisionally accepted. The Committee has now arranged for the necessary preliminary experiments to settle certain technical details. In particular it is necessary to ascertain the extent to which cotton can absorb (and subsequently evolve) hydrocyanic acid gas, the safeguards necessary, and the most practical and economical conditions for fumigation.—(*Indian Central Cotton Committee Annual Report.*)





## The Production and Marketing of Cotton in China.

*By B. Y. LEE, Shanghai, China.*

CHINA is ranked as the third cotton growing country in the world, producing two to three million bales of 500 lbs. each. China is also a great market for cotton yarn and the second largest market for cotton piece goods. During the past decade the imports of cotton goods into the country on an average amounted to the sum of more than \$150,000,000, or approximately 30 per cent. of the total imports. During the past year on the average per month China imported 10,000 bales of yarn from Japan and 1,000 bales from India.

Although China has about two million spindles in operation, she has to depend upon Japan and India for yarn and upon America and India for raw cotton. While the yarn produced in China is being consumed by the Chinese only, her raw cotton is being exported to Japan and many other countries when the American cotton is dear. Normally, the Chinese cotton quotation moves in sympathy with New York quotations, while yarns go in sympathy with the Japanese quotations, either directly or indirectly influenced by American middlings. It is interesting to see how the American cotton crop influences the Chinese yarn market.

The following shows the amount of cotton produced in China annually in piculs, each picul being 133 lbs. :

	Piculs		Piculs
1918 .. ..	10,965,530	1921 .. ..	5,438,000
1919 .. ..	9,916,000	1922 .. ..	7,342,000
1920 .. ..	6,750,000		

The following shows the cotton exported annually from China, of which Japan is practically the chief buyer :

	Piculs		Piculs
1913 .. ..	738,812	1918 .. ..	1,240,000
1914 .. ..	659,704	1919 .. ..	1,072,000
1915 .. ..	725,955	1920 .. ..	876,230
1916 .. ..	951,687	1921 .. ..	609,481
1917 .. ..	892,468	1922 .. ..	502,884

The cotton exported is mostly Tungchow grade and some of Shensi grade, both of which are about  $\frac{3}{8}$  in. in length and are used in mixing with middlings to spin fine counts in Japan mills. Some inferior or lower grades are exported to America for mixing with wool to make blankets. Tungchow, as its name implies, being the greatest cotton growing district in China, is located about 100 miles from Shanghai, which is its distributing centre as well as the cotton manufacturing centre.

In 1921, out of the total imports of cotton 516,676 piculs were American and the rest Indian and a very small percentage of Egyptian. In 1922, out of the total imports only 155,319 piculs were American, which was due to high price. The good grade of Indian cotton could be bought at a lower rate.

The following shows the total number of spindles, total consumption of various grades of cotton in China, in Japan and in India, in order to set forth the relative position of these countries in regard to the supply and demand of cotton :

Countries		Number of Spindles in Operation	Total Consumption Cotton per annum Piculs	
			American	Indian
India	..	5,590,000	..	7,098,342
Japan	..	4,400,000	..	8,184,000
China	..	1,750,000	..	4,000,000

The percentage of various grades of cotton is used in mills in these countries as follows :

	American	Indian	Egyptian	Chinese	Miscellaneous
India	8	95	.2	—	1.8
Japan	88	62	1.0	4	—
China	18.6	20.7	.1	65.6	—

Japan consumes a great bulk of American cotton in ordinary times. When the staple becomes too dear she turns first to China and then to India to supply her needs. It has happened many times that she takes a great bulk of the best grades of China's crop.

The following are the spindles and mills both in operation and nearly completed for operation owned by both Chinese and foreigners. Those under construction and planning are not included in this list :

Management		Number of Mills	Number of Spindles	
			Chinese	Japanese
Chinese	..	76	..	1,593,000
Japanese	..	32	..	680,000
British	..	5	..	257,000

All British mills in Shanghai buy their cotton from cotton merchants through their mill compradores, who generally charge a fractional part of 1 per cent. commission. The Japanese mills buy it in various ways, direct from farmers, through their agents, or through the cotton merchants. In regard to Indian cotton they have obtained special privileges from their steamship companies direct between two ports.

Practically more than half of the Chinese crop is sold in the open market within the month after the pickings are finished, that is, from September to November. Farmers are very anxious to get rid of their raw material immediately after the harvest season, as the demand for cash to pay off mortgages and debts is urgent on account of the high interest rate. This is the most critical period of the year for spinners, as the fluctuation of cotton is highest.

In the absence of an agricultural department or any reliable firms in giving a forecast or cotton crop estimate in each season, it is impossible to state with any degree of accuracy the exact nature of the cotton crop in China. All estimates are always mere guesses. As cotton is practically grown all over the country the amount of rainfall, activity of boll-weevil and other insects, weather reports, number of acres under cultivation, etc., are not tabulated in any way for scientific purposes.

On account of the wide fluctuation and uncertainty of the seasonal crop the cotton merchants and mill owners have been anxious to find some means to minimize the great loss through unwise buying and to have some way of standardizing the price. The cotton goods exchanges, which came into existence in 1921, were established to aid the marketing of the cotton crop during the period of uncertainty and speculation. There are three such exchanges in Shanghai, namely, the Shanghai Stock and Produce Exchange, the Chinese Cotton Exchange and the Chinese Cotton Goods Exchange.

The latter are becoming important in the cotton and yarn market of the country. Many mill owners are promoters and have anticipated in the varied operations. It is not a "traders' market," but rather a "speculative exchange." The word "exchange" literally means "business emporium" and "speculator" means "opportunity seeker" in Chinese; and hence speculation means "business" to many speculators.

It has often happened that within two weeks' time the total loss to speculators may reach as much as a couple of million dollars. The "outside" speculators are, like all amateur gamblers, losers as a class; and most of them are in the long run losers individually. Unquestionably many bandits and beggars of to-day are "outside" speculators of yesterday. All exchanges are located in the foreign settlement and are licensed by the foreign authorities, with which the Chinese Government can do nothing to remedy the evils within its own sphere of control.

Speculation in cotton and yarn is the most difficult, complex and complicated game of all stock exchanges in China. So many unusual points must be carefully considered before buying or selling futures. Externally, one should thoroughly understand the cotton market in America and in India and the yarn market in Japan. Internally, one should thoroughly understand the economic and political conditions of the country, particularly in regard to the fighting spirits of various generals, and also the actual conditions of the China crop.

Groundless rumours and sensational reports in regard to movements of troops and sudden clamour of anti-Japanese goods movements often bring a sharp drop in the cotton and yarn markets. When the country is peaceful and business is running as usual the rise or drop of the native cotton is in correspondence with that of middlings in value, cent for cent and dollar for dollar. American cotton is the most important single item underlying the fluctuation of the Chinese cotton, except during the time of political muddles in Pekin or business depression in Japan.

The tradition and custom of the people to pay off their debts before each of the great holidays has some effect on the cotton and yarn markets. These holidays are: Fifth of 5th moon, 15th of 8th moon and the New Year. The first is the least important of the three. The second occurs

somewhere between September and October, just about the time the new crop comes to the market, and is a most dangerous period for speculators and spinners.

The New Year holidays are the most critical period of all. Everyone must clear his debts and save his "face" for the coming year in the business world. Sometimes a week or so before the holidays, many yarn merchants stop doing business and make preparations for the New Year. Farmers and cotton merchants sell whatever stock is in their possession and start all over again after the holidays. Mills, too, want to show the actual cash in hand.

Speculators must clear off their debts with the brokers. In other words, the money market is tight and the interest rate is exceptionally high during the holidays. If the demand for yarn should be slack or any unusual drop of middlings occurs during this critical period, sensation and excitement are jointly mixed and shown in the exchange, and the result is more likely to knock down the price far below what it ought to be. This is, indeed, one of the real "Chinese puzzles." In order to be a successful speculator, one must take all these points into consideration, otherwise he might become a beggar or a bandit within a comparatively short time. (*The Economic World, January 12, 1924.*)

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## The Cotton Growing Industry of Peru.

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By SEÑOR OSCAR VICTOR SALOMÓN,  
*Consul General of Peru, London.*

COTTON ranks second in importance among Peruvian agricultural products, sugar being the first, and has come to constitute one of the most dependable sources of the Republic's wealth.

Practically the entire cotton crop of Peru is grown in the irrigated valleys of the Pacific coastal zone, with the exception of insignificant quantities produced in the Department of Loreto (Iquitos region) and in a few inland districts such as Huanuco, Chanchamayo, Abancay, etc. The official statistics of the Peruvian Government give 35 separate producing valleys along the coast, the most important of these being Piura, La Chira, Supe, Huacho, Chancay, Lima, Canete, Chincha, Pisco and Ica. Each valley has its peculiar characteristics, and there is considerable variation in season, varieties and average yields. For this reason it is difficult to generalize concerning the Peruvian crop as a whole.

Since the commercial crop of Peru is grown by irrigation only, the immediate extension of the present acreage depends upon the providing of additional irrigation facilities along the coast. At best such extension is limited. There are undoubtedly areas east of the Andes adapted to cotton cultivation, but population and means of transportation are lacking. The superficial area of the plantations in 1919 (the latest figures available) was 310,019.01 hectares, of which area 88,863.36 hectares had been cultivated for cotton, and 33,207.16 being pasture land.

## VARIETIES OF COTTON

Five main varieties of cotton are grown in Peru, each of which has several grades. A brief description of these varieties follows :

**FULL-ROUGH (*áspero*).** The famous full-rough of Peru, known locally as *áspero* or *algodón de pata*, is the best type of the original native variety and is produced only in the Department of Piura. It is distinguished by the very rough, crinkly fibre, which is especially suitable for the mixing with wool in the manufacture of textiles. The average length of the full-rough fibre is  $1\frac{1}{4}$  in. The plant grows to a height of 10 to 12 ft., and has the appearance of a small tree. Four or five crops are obtained from one planting. Although the shrub will live for 15 years or more, the yield decreases to such an extent after four or five years that it pays to replant. An interesting characteristic of the native variety is that it bears twice a year.

**SEMI-ROUGH (*semi-áspero*).** The semi-rough variety is usually regarded as a modified form of the full-rough, the differences being due to climatic influences and soil. The importance of the semi-rough has greatly decreased during the past three years, the relatively small yield causing it to be replaced by more profitable varieties. The semi-rough fibre is less rough than that of the Piura variety and averages  $1\frac{3}{16}$  in. in length. The only sections in which it still constitutes an important percentage of the crop are the Palpa and Nazca valleys (near Ica), Moquegua and the Department of Loreto (Iquitos).

**EPIPTO OR SUAVE.** Suave is grown to some extent in most of the valleys of the coast and still constitutes a considerable percentage of the total crop. The Chincha valley is by far the largest producer. The fibre has an average length of from  $1\frac{1}{16}$  to  $1\frac{1}{4}$  in. Two crops are usually obtainable from one planting.

**TANGUIS.** This important variety, which has almost revolutionized the Peruvian cotton industry, is grown in the Pisco valley. The fibre is very white and is a long staple averaging  $1\frac{5}{16}$  in., although  $1\frac{1}{2}$  in. is found. The chief advantage of Tanguis is its high yield, which is 25 to 30 per cent. greater than any other variety. So popular has it become on this account that in 1922 it was estimated to constitute approximately 60 per cent. of the total Peruvian crop. The plant reaches to a height of about 6 ft. and is very hardy. Two or three crops are obtained from one planting, and in some cases four or five are possible with a liberal use of fertiliser guano. The super-fine grade of Tanguis brings the highest price of any Peruvian cotton on the market. Other grades are good-fair and fair.

**MITAFIFI.** Mitafifi was originally grown from Egyptian seed, but is now thoroughly acclimatized. It is grown in many valleys, but thrives best in Pativilca, Supe, Barranca, Chancay, Huacho and Cañete. The fibre is cream-coloured, smooth and silky, and averages  $1\frac{1}{4}$  in. in length. Two crops are obtainable from one planting.

**OTHER VARIETIES.** Small quantities of sea-island cotton are grown in Peru, its cultivation being most successful in the Supe valley, north of Lima. This variety has also been tried in the Iquitos region, but seems to have been given up there. Sakellarides is raised in the Huarmey

and Huacho valleys in small quantities. In some of the interior sections cotton grows wild and is utilized by the Indians in weaving homespun garments.

### CLIMATIC CONDITIONS

Climatic conditions in most of the coastal belt are exceptionally favourable for cotton growing. There is no rain, hail or frost to injure the growing crop, and the climate is more or less uniform throughout the year. From June to December heavy mists and fogs, which occur along the coast, furnish considerable moisture, but damage cotton that is allowed to remain unpicked for any length of time.

All agriculture along the coast is carried on by means of irrigation, and thus the progress of the cotton crop depends on the availability of water in the short rivers flowing from the mountains to the ocean. A few of these streams are permanent, but the majority dry up from June to November. The planting season is therefore dependent in many valleys on the flood period of the rivers which generally occurs between November and April. This, however, is earlier in some valleys and later in others, and often varies from year to year.

### PLANTING AND HARVESTING SEASONS

In valleys which are watered by permanent streams, cotton is planted, as a rule, from September to October or November. In the Santa, Casma and Huarmey valleys it is sometimes done as early as June or July. In the Piura section the customary planting season is from January to March, when water is abundant and the largest areas can be most easily irrigated. Some planting is done in October and November, however, especially in the Chira valley, where there is always water. In the Chincha and Ica valleys there are two planting seasons. Cotton may be planted in the flood season, from December to February, maturing in about six months, or it may be planted in May or June.

The Peruvian cotton harvesting season is not sharply defined or uniform. Picking is in progress in some locality during practically every month of the year. The bulk of the crop is harvested from April to July, although in some sections picking begins as early as March. This statement applies principally to the central coastal region. Picking of full-rough commences in late July or August for the San Juan crop, after which there is a lull till January to March, when the second, or Christmas crop is available. In the valleys where semi-áspido is grown, there is also a second picking, from about October to December. In the extreme south the season is somewhat later than in the central region, Suave usually being picked from May to July, and Tangis and Mitafifi from June to August. In the Iquitos region the main harvest comes from June to August, and there is a second picking towards the end of the year.

### AVERAGE YIELDS

The complicated nature of the Peruvian cotton industry makes it difficult to arrive at a general average of yield. Production varies according to the variety, whether it is newly planted or ratoon crop, and according to the special conditions prevailing in each valley.

In general, it may be said that Peru's yield is far above that of the United States, and ranks well with the leading countries of the world. Peruvian official statistics for the years 1916 to 1919 give the average yield as follows :

	Unginned cotton	Ginned cotton	Percentage of Tint
			Kilo per hectare
1916	.. .. ..	1,394	496
1917	.. .. ..	1,267	423
1918	.. .. ..	1,148	393
1919	.. .. ..	1,036	377

\* Roughly equal to the same number of lbs. (English) per acre.

Taking 1919 as a basis, the average yield of Peru is equivalent to approximately 335 lbs. of ginned cotton per acre, or about two-thirds of a standard bale.

The Tanguis variety gives the largest yield, and the average production on good land is from about one-and-a-half bales per acre. On some "haciendas" two bales have been made. Ratoon crops usually give less, but in the case of Tanguis, the second year's crop is larger than the first. Suave and Mitafifi seldom give more than a bale to the acre on the best land, while the general average is lower. The average yield of full-rough, over a period of three or four years, is probably not more than 200 to 220 lbs. per acre, and semi-rough produces virtually the same yield.

### LABOUR CONDITIONS

Cotton growing in Peru requires large capital for the best results. As a consequence there is a constant tendency for the large estates to absorb the smaller ones. Labourers usually live on the estate, and are given a piece of land for their own cultivation in addition to regular wages for the days they work for the owners. The average wage varies from three to four shillings (one-and-a-half to two soles, Peruvian currency) per day, and rations are usually allowed as well. The labour supply is somewhat deficient on the coast, and it is the custom to contract for men from the mountains during the busier seasons. The average Peruvian agricultural labourer is a stolid individual, loath to change from the habits of his ancestors, hence it is difficult to introduce improved methods of cultivation.

### PRODUCTION COSTS

The costs of cotton production in Peru will obviously vary widely according to the special conditions of each plantation. The present average cost of production varies from 30 to 35 soles per quintal (£14 to £16 per bale of 500 lbs.). These figures include the rental value of the land and all expenses of cultivation. As a quintal of cotton is worth 60 to 70 soles, the profit is approximately 100 per cent.

Good cotton land is worth from £25 to £50 (sterling) per acre, but it is difficult to purchase good land on the coast as the present owners seldom wish to sell.

The following are estimated figures for the cost of production in 1921 for the various operations necessary on a typical "hacienda" on the coast. The unit considered is the "fanegada" (seven-and-two-fifth acres), and the cost stated in Peruvian currency—Peruvian pounds, soles and centavos. (The Peruvian pound is worth slightly under one pound sterling, there being 10 soles to the pound, and 100 centavos to a sol.)

**PLANT CROP :**

	Lp. s. c.
Cutting out old crop in order to replant (roots and stalks are usually very heavy and require considerable work to remove..)	10 0 00
First and second ploughings .. .. .. ..	10 0 00
Harrowing, digging by hand (twice), and weeding .. .. ..	14 2 00
Drilling and sowing (with spade and by hand) .. .. ..	3 9 00
Cleaning irrigation drains .. .. .. ..	5 0 00
One application of water .. .. .. ..	1 0 00
One ton of guano used in stony places .. .. .. ..	7 0 00
Applying the guano (labour) .. .. .. ..	0 5 00
Rations to labourers .. .. .. ..	4 6 00
Total .. .. .. ..	56 2 00

These figures (including the following), cover a two-year period, which includes one plant crop and one ratoon, or second-year crop, the latter not being replanted. The rental value of the land is not included:

**FIRST RATOON (second year's crop from same roots) :**

	Lp. s. c.
Pruning or cutting off stalks .. .. .. ..	4 0 00
Deep spading and weeding (twice) .. .. .. ..	8 0 00
Cultivation with oxen (twice) .. .. .. ..	4 0 00
Five applications of water .. .. .. ..	4 2 00
Cleaning of irrigation canals .. .. .. ..	1 2 00
Three tons of guano .. .. .. ..	21 0 00
Spreading guano .. .. .. ..	1 5 00
Rations for labourers .. .. .. ..	3 0 50
Total .. .. .. ..	46 9 50

The two years' cost is thus Lp.103.1.50, the average per year being Lp.51.5.75. As the "hacienda" from which these figures have been taken brought in a gross profit of about 170 Peruvian pounds per "fanagada" each year, the profitable nature of the industry under proper management is clearly seen.

**THE GINNING INDUSTRY**

There are comparatively few public gins in Peru, the majority of the "haciendas" ginning their own cotton. Difficulties of transportation make it necessary to gin the cotton as near as possible to the source of production. According to official statistics (the latest available) there were 115 separate ginning establishments in the Republic, and a fair estimate of those at the present time would be between 125 and 140, many of which are small primitive affairs with a capacity of only four or five bales per day. The average density of a bale in Peru is only from 17 to 20 lbs. per cubic foot.

Two kinds of ginning machinery are required. The saw-gin of the usual American type is used for the full-rough, Suave and Tanguis varieties. A roller-gin, made by a British firm, is used for Mitaifi. This machinery is slow, but the lint comes out very clean. About six makes of well-known American gins are in successful operation in Peru.

Peruvian exports of linters during these years were: 1918, 40,281 kilos; 1919, 106,513 kilos; 1920, 249,887 kilos; 1921, 95,216 kilos.

The weight of a bale varies greatly according to the location and transportation facilities of the gin. Where there is easy access to a railroad or steamer, bales of 450 to 500 lbs. are found. A heavy wire is used for baling instead of the steel strapping customary to the United States, and each bale is entirely covered by 9 oz. burlap, which keeps the lint clean.

The official statistics of cotton exports by varieties and principal countries of destination are shown in the following table, for the years 1920 and 1921:

The official statistics of cotton exports by varieties and principal countries of destination are shown in the following table.

Varieties	UNITED STATES			GREAT BRITAIN			ALL OTHER COUNTRIES			TURKEY		
	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921
	kilos	kilos	kilos	kilos	kilos	kilos	kilos	kilos	kilos	kilos	kilos	kilos
Full-rough:												
White ..	645,975	1,033,003	3,875,275	2,380,750	907	25,005	4,504,157	4,368,704				
Brown or mixed ..	10,391	31,556	147,577	121,483	393	5,290	158,561	158,329				
Stained ..	1,799	47,106	494,011	195,102	38,923	187,083	384,738	379,241				
Semi-rough:												
White ..	431,490	188,631	1,486,884	973,454	10,712	34,429	1,929,086	1,196,514				
Yellow or stained ..	131	—	11,871	—	—	—	12,002	—				
Milatifi:												
White ..	3,205,440	1,649,311	5,349,636	5,360,342	23,539	12,625	8,578,915	7,022,278				
Yellow ..	62,009	26,978	144,190	13,469	392	467	206,591	40,914				
Quave:												
White ..	27,454	162,984	8,874,794	10,124,784	48,185	16,941	8,950,483	10,304,709				
Yellow or stained ..	—	—	120,671	101,737	1,269	17,303	121,940	119,040				
Fanguis ..	..	..	1,159,602	—	11,447,864	—	—	—				
Sakallarde ..	..	..	15,250	—	91,451	—	26,944	—				
Int. ..	..	..	10	141,718	14,977	108,714	80,229	249,387				
Totals ..	..	..	5,244,487	20,628,082	30,825,413	233,234	356,266	25,246,905	36,426,116			

## EXPORT TAXES

Export taxes on cotton constitute an important source of revenue for the Peruvian Government. The tax is based on the current market price of the different varieties in English money and is fixed each week by the Ministerio de Hacienda (Ministry of Finance). This tax is determined as follows :

Mitafifi and Suave pay 2d. per quintal (101 lbs) when the market price is 10d. per lb., f.o.b. port embarkation, the rate increasing 10 per cent of the gross value on quotations in excess of that figure. Tanguis is also taxed on the same basis.

All cotton produced in the valleys of the Department of Piura pays an export tax of 12½d. per quintal when the price is 12d. per lb., and 10 per cent additional for higher quotations. This applies to full-rough Suave, Mitafifi and Tanguis alike, as well as to the coloured varieties. Cotton in the Majes and Camana valleys of Southern Peru is taxed on the basis of 11d. per quintal when the price is 10d. per lb., and 10 per cent for higher quotations. All cotton produced in the Montaña region of Peru may be exported free of duty.

The official quotations on cotton, as fixed weekly by the Government, together with the tax levied on each variety in accordance with the law, are published each week in the *Bulletin of the Lima Bourse*. A typical table is given below, as of January 23, 1923 :

	Quotation Pence per lb.	Tax. Pence per quintal
Full-rough, good fair .. .. .. .. ..	14·75	40·00
" " brown .. .. .. .. ..	11·75	—
" " yellow .. .. .. .. ..	9·75	—
Semi-rough .. .. .. .. ..	14·50	47·50
" yellow or stained .. .. .. .. ..	11·50	17·50
Mitafifi, good fair .. .. .. .. ..	12·75	51·50
" yellow or stained .. .. .. .. ..	8·75	—
" of Piura .. .. .. .. ..	12·75	20·00
" " yellow or stained .. .. .. .. ..	8·75	—
Suave, fair .. .. .. .. ..	15·30	77·00
" yellow or stained .. .. .. .. ..	12·80	47·00
" of Piura .. .. .. .. ..	15·30	45·30
" " yellow or stained .. .. .. .. ..	12·80	15·50
Tanguis, superfine .. .. .. .. ..	17·05	84·50
" good fair .. .. .. .. ..	16·05	84·50
" fair .. .. .. .. ..	15·30	84·50

## TAXES ON COTTON FROM MAJES AND CAMANA

	Quotation. Pence per lb.	Tax. Pence per quintal
Suave, fair .. .. .. .. ..	15·30	64·00
" yellow or stained .. .. .. .. ..	12·80	34·00
Sen i-rough .. .. .. .. ..	14·50	56·00
Mitafifi .. .. .. .. ..	11·50	26·00
" yellow or stained .. .. .. .. ..	12·75	38·50
Tanguis .. .. .. .. ..	8·75	—
" .. .. .. .. ..	16·05	71·50

(NOTE.—Where no tax is shown, the price is not high enough to subject the variety to the tax.)

The following local taxes on cotton are levied, in addition to the national taxes :

*Huacho.* Ten centavos per quintal on exports of cotton through the port of Huacho. For sanitation works.

*Chincha.* Twenty centavos per quintal of cotton ginned in the Province of Chincha. To acquire a physics and chemical laboratory for the college of Chincha.

Ten centavos per quintal of cotton produced in the Province. To raise funds for a wireless station.

*Cañete.* Ten centavos per quintal of cotton ginned in the Province of Cañete. For sanitation works.

*Pisco.* Thirty centavos per quintal of cotton ginned in the Province. For the Public Charitable Society.

*Ucayali.* One centavo per kilo on all sales of cotton within the Province. To build a cemetery and public plaza in Contamana.

#### MISCELLANEOUS INFORMATION

Figures showing the growth of the cotton industry from 1916 to 1919, taken from official publications:

Items	1916	1917	1918	1919
Total production, bales of 478 lbs	108,000	115,000	120,000	175,000
Area .. .. .. hectares	55,363	64,030	77,872	88,863
Labourers employed .. No	20,514	22,366	27,358	32,017
Yield of ginned cotton per acre, kilo	196	123	393	377

#### TRADE IN COTTON SEED

Cotton seed constitutes an important item of export. The export tax is as follows: 75 centavos per quintal on seed shipped to the United States and European countries. Three soles on seed shipped to other countries.

#### PERUVIAN EXPORTS OF COTTON AND BY-PRODUCTS FOR THE YEARS 1922-1923

Product	1922		Jan/Aug., 1923	
	Value Peruvian Pounds	Weight Metric tons	Value Peruvian Pounds	Weight Metric tons
Tangus .. ..	1,772,188	11,612	1,188,825	8,768
Matafisi, white .. ..	907,007	9,419	545,056	4,377
Suave, white .. ..	961,386	9,193	505,009	4,050
Full-rough, white .. ..	370,603	3,177	154,080	1,216
Senii-rough, white .. ..	190,231	1,969	80,294	627
Full-rough, stained .. ..	40,536	307	20,235	240
Sakellaride .. ..	21,165	190	14,737	115
Matafisi, stained .. ..	16,107	198	7,986	90
Full-rough, brown or mixed .. ..	13,348	158	8,363	87
Suave, stained .. ..	11,142	129	11,799	120
Full-rough Huánuco .. ..	6,038	63	3,915	35
Cotton seed oil .. ..	135,018	2,411	65,156	1,081
Cotton seed .. ..	124,361	17,577	15,054	1,553
Cotton seed cake .. ..	92,514	16,827	56,513	8,032
Lint .. ..	18,437	316	4,882	59
Cotton cloth .. ..	11,633	—	26,093	37

The proportion of by-products obtained in the factories varies greatly. The official estimate for 1918 was as follows: Linters, 0.9 per cent.; Oil, 12.5 per cent.; Hulls, 3.15 per cent.; Cake, 55.1 per cent.

Exports of cotton seed during the years 1918-1921, by countries of destination, are shown in the table opposite.

## EXPORTS OF COTTON SEED, 1918-1921

Countries of Destination	1918	1919	1920	1921
	kilos	kilos	kilos	kilos
Chile .. ..	10,101,849	16,029,024	1,453,106	2,585,995
United States .. ..	139	—	88,635	10,022
Great Britain .. ..		15,287,702	7,954,271	20,512,908
Germany .. ..		9,660	—	102,451
All other countries .. ..	93,630	2,399	21,158	—
Total .. ..	10,195,618	32,228,785	12,517,170	32,211,376

A Decree of May 11, 1921, provides that no cotton seed may be exported from the country until the needs of local factories are supplied. In accordance with this ruling, exports of seed from the Piura district were prohibited on October 25, 1922, until further notice.

## MEXICAN COTTON.

The British Vice-Consul at San Diego, California, has forwarded to the Department of Overseas Trade an extract from a local Press report upon the cotton position in Mexico. From this report it appears that there is a growing probability of a shortage of cotton sufficient to cause many of the textile mills of Mexico to close down daily according to dispatches from the city of Mexico. These are based largely on the report of the Minister of Agriculture, made public through the newspaper *Excelsior* which shows that as a result of the unprecedentedly long drought of last year in the Laguna district only about 25,000 bales of cotton would be made. The ordinary crop is approximately 200,000 bales.

Mexico's textile plants ordinarily use about 150,000 bales of cotton and have entered the new crop season with but little surplus.

Exorbitant freight rates which prevail at present preclude the use of cotton from the Lower California fields to advantage, the Government report says, and the entire Lower California output will be sold to manufacturers in the United States or to Asiatic buyers for export.

In view of the impending crisis, the Government of Mexico is taking precautions against a repetition of the crop failure next year, or in the future, chiefly by studying soils and climates of other regions.

This investigation has developed the fact that in the State of Tamaulipas there are large areas of unsurpassed quality for the cultivation of the staple. The Ministry of Agriculture and Promotion, therefore, has decided to designate a committee of engineers to study the agricultural problem in that State.

A proposition under consideration by the Government is the importation into Tamaulipas of a number of native labourers from other districts of the country, as well as some from the United States, in order to have expert handling of the crop at the start. The first experiments in cotton cultivation will be made on Government-owned lands with later chance to acquire the farms which they are working used as an attraction to draw skilled cotton labour to Tamaulipas. The conversion of the labourers into landed proprietors is proposed to be effected by means of organization of a co-operative society, supported during its early stages by the Government.

The Ministry of Foreign Relations, recently reported that from November 1, 1922, to April 30, 1923, there were 139 cotton textile and weaving plants. Of these plants 11 were devoted entirely to manufacture of textiles, 6 to weaving, only 97 to both textiles and weaving, 6 to textiles (caps and bonnets), 12 to textiles, weaving and stamping, 1 to stamping cloth already made up and 1 to dyeing cloth.

Capital invested in machinery, buildings and other physical properties totals \$71,728,806.27; number of operatives, 40,051; number of workshops, 29,503; number of spindles, 801,639; combing machines, 2,195; weaving, cap, bonnet machinery, 1,633; stamping machines, 51; 40,861 h.p. was consumed during the six months' period in operating the machines.

Cotton consumed during the period amounted to 16,617,422 kilos (a kilo is 2.2 lbs.); sales reported, \$49,193 to \$142.75. The factories produced 153,489,826 m. of cotton cloth, 23,814 dozen towels, blankets and bedspreads, 584,171 dozen of hosiery, underwear, sweaters and miscellaneous goods.

## COTTON GROWING IN FRENCH WEST AFRICA.

The railway line of Thiès-Kayes is going to be a favourable factor in the development of cotton growing in the French Sudan, as it will provide an easy, rapid and economical means of transport for all the produce of French West Africa.

The development of cotton growing in French West Africa has been considerably retarded through the inadequate means of transport, consequently the completion of the direct line, between Kayes and Bamako and the large port of Dakar, means a new phase in the development of cotton growing.

Until recently, and then only during a few months of the year, the portions of this line were connected by regular services of motor-cars, but this was limited to the transportation of valuable produce of small dimensions, and it was out of the question to use this method for cotton, which had been shipped on the Senegal River in an ill-fashioned and cumbrous way. This was feasible, but with too many risks to the cotton picked and ginned in the immediate surroundings of Kayes, and the uncertainty of the time and duration of the high water-level in the Senegal from year to year made it very difficult for larger boats to use the port of Kayes; the exporters from the greater part of the Sudan and particularly from the Niger Valley could never be certain of having their cotton bales sent down in time, consequently they had to be stored frequently in Kayes until the following season. This uncertainty was accentuated by the insufficiency of the "Kayes-Niger" transport, where considerable difficulties were encountered owing to its isolation in the interior of the continent; as a result, during the last few years many thousands of tons of produce were held up at Koulikoro, the terminus on the northern part of the River Niger, whenever the low water-level of the Senegal made it impossible for goods to be transported by this natural course. Certain exporters overcame this

difficulty by utilizing the southern watercourse below the terminus, so as to enable them to use the river for transporting their produce to Kouroussa. From here the goods were transhipped to Konakry by the railway of New Guinée, but this procedure necessitated transhipment at Koulikoro, Baniako and Kouroussa, which was often the cause of delays of far-reaching consequences.

The uncertainty resulting from all these difficulties was the principal cause of the indifference which colonial merchants have shown towards cotton growing. Moreover, for more than 20 years the French Colonial Cotton Growing Association could not pursue its activities in its colonies, and in particular in French West Africa. The high prices raw cotton reached during and after the war were really necessary to cause the interested parties to devote attention to cotton; but considering the risks the precarious means of transport exposed them to, they did so only intermittently, and without expecting that the prices offered to the planters might compensate them for the irregular purchases in order to create an effective encouragement for the development of cotton growing.

This shows the importance of the Thiès-Kayes railway in the development of cotton, besides the security given to the Sudanese exporters which now means that they will be able to transport their produce rapidly in all seasons. This development means that the cost of the raw material will be much lower. By means of shipment on the Senegal or the Guinée, costs of transportation for cotton from Segou to Havre varied, according to circumstances, between 800 and 1,100 francs per ton. We have not any exact means of stating the present cost of transport on the Thiès-Kayes railway, but it will certainly not exceed 800 francs per ton and, as time goes on and more goods are handled through the line linking up such stable cotton districts as Koutiala, Sikasso and even the Upper Volta to the Valley of the Niger, the cost of transportation will gradually decrease.

It is to be hoped that the whole project of the railway of French West Africa will be carried through in the near future. A good deal will still have to be done; meanwhile, the distant colony of the Upper Volta, as well as the districts of the Southern Sudan, might utilize the extended railway of the Ivory Coast. We must avail ourselves of the means of communication established so far in view of the shortage of cotton from America. Every effort should be concentrated so that tangible results appear as one of the consequences of the progress realized, due to the new railway line opened up for traffic. This would be the best means of encouraging the rapid completion of the whole of the railway system, which alone will allow the proper development of French West Africa, including even the far distant sections.

NOGUÈS,

*Director of the French Colonial Association.*

*The following is the original article in French:*

La ligne de Chemin de fer Thiès-Kayes ouverte à l'exploitation, va favoriser le développement de la Culture du coton au Soudan Français, en procurant un moyen facile, rapide et économique du transport de tous les produits de l'A.O.F.

Le développement de la culture cotonnière en Afrique Occidentale a été considérablement retardé par l'insuffisance des moyens de transports ; aussi l'achèvement de la voie ferrée reliant directement Kayes et Bamako au grand port de Dakar fait-il rentrer la question cotonnière dans une nouvelle phase.

Jusqu'à présent, et seulement pendant quelques mois de l'année, les tronçons de cette ligne reliés par un service régulier d'automobiles pouvaient servir au transport de produits riches et peu encombrants, il ne pouvait être question de l'utiliser pour le coton qui devait emprunter l'ancienne voie fluviale du Sénégal qui présentait d'assez sérieux inconvénients. On pouvait sans trop de risques l'employer pour l'évacuation du coton récolté et égrené dans les environs immédiats de Kayes, mais l'irrégularité des crues du Sénégal faisant varier d'une année à l'autre la durée de possibilité d'accès aux grands bateaux du port de Kayes, les exportateurs de la plus grande partie du Soudan et en particulier de la vallée du Niger, ne pouvaient jamais être assurés d'y faire parvenir en temps voulu leurs balles de coton qui risquaient ainsi d'être immobilisées à Kayes jusqu'à la saison suivante. Cette incertitude était encore aggravée par l'insuffisance du "Kayes-Niger" qui éprouvait lui-même d'énormes difficultés, du fait de son isolement à l'intérieur du continent, à se procurer le matériel indispensable. Aussi vit-on au cours de ces dernières années des milliers de tonnes de produits en souffrance à Koulikoro, terminus du bief Nord du Niger, au moment où la baisse des eaux du Sénégal allait rendre impossible leur évacuation par cette voie naturelle. Certains exportateurs remédiaient à cet état de choses en utilisant le bief sud du Niger qui permettait le transport de leurs produits à Kouroussa d'où ils étaient acheminés vers le port de Conakry par le chemin de fer de Guinée ; mais cet itinéraire comportait, outre le transbordement de Koulikoro, ceux de Bamako et de Kouroussa ce qui était souvent la cause de retards pouvant avoir les plus graves conséquences.

L'incertitude résultant de ces difficultés fut la principale cause de l'indifférence que montrèrent longtemps la plupart des commerçants coloniaux devant les efforts que depuis 20 ans l'Association Cotonnière Coloniale fit pour développer dans nos Colonies et en particulier en A.O.F. la culture du coton. Il fallut les prix élevés que ce produit attira pendant et après la guerre pour les décider à s'y intéresser ; encore, toujours en raison des risques que leur faisait courir la précarité des moyens de transport, ne le firent-ils que par intermittence et sans que les prix offerts aux récolteurs puissent compenser l'irrégularité des achats pour constituer un efficace encouragement au développement de cette culture.

Tout cela montre l'importance du rôle que peut jouer le "Thiès-Kayes" dans la résolution du problème cotonnier. Outre la sécurité qu'il donne aux exportateurs soudanais assurés maintenant de pouvoir évacuer rapidement leurs produits en toutes saisons, cette évacuation s'opérera à des prix très inférieurs à ce qu'ils étaient précédemment. Par la voie du Sénégal ou de la Guinée le coût de l'acheminement d'une tonne de coton de Séguo au Havre variait suivant les circonstances entre 800 et 1,100 francs. Nous n'avons pas encore les renseignements suffisants pour dire exactement le prix de ce transport par la voie du Thiès-Kayes, mais il est permis de prévoir que le chiffre de 800 francs devient un maximum qui ne sera vraisemblablement jamais atteint et qui

ne peut que diminuer au fur et à mesure de l'amélioration des voies rattachant les régions si propices à la culture du coton à Koutiala, Sikasso et même de la Haute-Volta à la vallée du Niger.

Il faut souhaiter que l'ensemble du projet concernant le réseau ferré de l'A.O.F. ne soit pas réalisé dans un avenir par trop éloigné. Il y a beaucoup à faire ; mais en attendant que la lointaine colonie de la Haute-Volta ainsi que les cercles du Sud du Soudan puissent utiliser les voies ferrées de la Côte d'Ivoire prolongées il est du devoir de tous ceux qu'intéresse la prospérité de notre empire colonial de savoir profiter de l'étape accomplie à ce jour—and à l'heure où l'industrie cotonnière de l'ancien monde se voit menacée par la diminution des importations de coton d'Amérique, l'effort de tous doit s'intensifier afin que des résultats tangibles apparaissent comme l'une des conséquences des progrès réalisés grâce à la nouvelle voie ferrée récemment ouverte à l'exploitation. Ce serait le meilleur moyen d'encourager l'achèvement rapide de l'ensemble des lignes de chemin de fer qui, seules, permettront la mise en valeur de toute l'A.O.F. sans en excepter les régions les plus lointaines.

NOGUÈS,

*Directeur de l'Association Cotonnière Coloniale.*

## Australia as a Cotton Producing Country.

### POSSIBILITIES OF QUEENSLAND : A WHITE MAN'S INDUSTRY.

A USTRALIA, and Queensland in particular, as a cotton producing country was the theme of an address delivered by the Hon. E. G. Theodore, Prime Minister of Queensland, on Tuesday, when he was the guest of the President of the Manchester Chamber of Commerce, Dr. Alfred Rée, and the members at the Midland Hotel, Manchester.

Dr. Rée said that among the points which they would like to know more about were : the labour available in Queensland for dealing with cotton growing ; to what extent white labour was suitable for that purpose ; what had been the experience in Queensland in the matter of employing white labour in the cotton fields ; what facilities of transport they had for transferring the cotton from the cotton fields to the ports, where it could be shipped.

Mr. Theodore said he sincerely believed that Queensland would have very definite and important relations with Lancashire in the years to come. Queensland, he said, had immense possibilities as a cotton producing country. They had millions of acres of land suitable for cotton production, of amazing fertility, and with good rainfall. So far as they knew, Australia was free from those terrible pests which had made such vast

inroads on the prosperity of other cotton growing countries ; he referred more particularly to the boll-weevil and the pink boll-worm. He believed they could keep it free because of its insular position. Queensland became interested in cotton growing about 1920. Years before it had been grown more or less sporadically as early as the 'sixties because of the high price of cotton, and a few farms were established. Again, in 1920, high prices ruled for cotton, and as a result of encouragement from the British Cotton Growing Association they decided to launch the industry once more. They received a guarantee of 1s. 6d. per lb. from the Association for lint cotton of good quality and free from disease. That was for five years provided the loss to the Association was limited to £5,000. The guarantee was absorbed in one season, and it came to an end. That, however, accomplished a great deal of good on behalf of the State, and he wanted to express his appreciation and gratitude to the British Cotton Growing Association for their assistance. It enabled the State Government to realize the prospects, who had now continued a guarantee to the Queensland growers of 5d. per lb. for seed cotton. The Empire Cotton Growing Corporation had co-operated in a more practical way than merely financial. They had placed at their disposal a cotton growing expert, Colonel Evans, who was in charge of cotton growing in Queensland. They were also providing an entomologist to study insect pests and other matters.

#### PROGRESS SINCE 1919.

In 1921 a new form of assistance came along. Some commercial people interested themselves in the young industry and formed a company of ginners of cotton seed, oil products, and for handling the crop in a commercial way. They had found capital to about a million pounds.

Referring to the progress made, Mr. Theodore gave the following figures of acreage and yield in Queensland since 1919 :—

			Acreage		Yield in lbs.
1919	..	..	73	..	—
1920	..	..	166	..	37,000
1921	..	..	1,960	..	941,000
1922	..	..	8,100	..	3,800,000
1923	..	..	28,000	..	11,300,000
1924	..	..	108,000	..	*50,000,000

Estimated.

In 1922 there were 1,600 cotton growers, and in 1924 there were 9,200. There was no doubt that in Queensland there were prospects of a great future. These figures only indicated an industry in its infancy. They claimed that they had 50 million acres suitable for cotton cultivation, and 15 million acres could be regarded definitely as the cotton belt of Queensland. The decision of Mr. Richard Harding, an expert, was that the Australian climate was more uniform than that of either Egypt or America. The 1923 season was one of the worst they had experienced for 20 years, as it was a season of drought, but the present season had opened with great promise and there was likely to be an advance in land put under cotton during next season.

#### COST OF PRODUCTION.

He expected they would want to know how Queensland fared in regard to the cost of production and how producers were carrying on with white labour in the absence of coloured labour. This was an

important consideration. At the outset, from their study of the cost and their knowledge of the conditions there could be no doubt that the Australian farmer would find it a remunerative industry if he could get 4d. per lb. for seed cotton. If Australia was able to produce a superior type of cotton and get the best price ruling in the Lancashire market possibly the farmer could get 4d. per lb.

Other figures given by Mr. Theodore of the cost of production were : ploughing, 33s. 9d. per acre ; planting, 3s. 9d. ; cultivating, 8s. 3d. The yield per acre had been about 800 lbs. of seed cotton and the cost of picking 2d. per lb., the total cost being £10 8s. 5d. This meant a net cost of 3d. per lb. That allowed ample margin if the figures could be maintained, and he thought they could. This applied more particularly to the farmer who could employ his family. They had found adult labour had been less efficient than child labour. The figure mentioned was the maximum.

#### MUCH HIGHER YIELD THAN AMERICA.

In 1922 the yield was 642 lbs. of seed cotton per acre, but the amount harvested was over 800 lbs. per acre. The yield in the United States was 492 lbs. per acre, but Queensland was much higher than that. As to the quality of the crop, the 1922 crop gave some definite indication of the value of the cotton crop of Australia. The 1923 crop was uneven in staple and quality. The cotton of the 1922 crop, which was typical, was classified as fully good middling, with a staple of  $1\frac{1}{8}$  in., and in some instances  $1\frac{3}{16}$  in. It was purchased by a well-known Lancashire firm. The 1924 crop offered better prospects. The 108,000 acres in Queensland would be harvested about May this year, and according to cables he had received it was estimated that the yield would be 40,000 bales of lint cotton.

#### QUICK RETURN TO THE FARMER.

The main thing the State had to accomplish was to get new farmers, as well as old farmers, to take up cotton production. Millions of acres of land were available for cotton. Some of the land only needed the plough to be put into it without any preliminary preparation whatever. All the farmer had to do was to plough up 10, 12 or 15 acres, and he would get a return within a few months of sowing his seed. There was no other industry in which that could be done. It took 100 acres of wheat land to produce as much in gross value as 10 to 15 acres of cotton.

#### BLACK LABOUR UNNECESSARY.

It was the considered opinion of the Government of Queensland that there was no necessity to have coloured labour or cheap labour of any kind to carry on this industry. This was a white man's industry. A man could cultivate his 20, 30 or 40 acres of cotton, doing the work himself, with the assistance of his family. He might have to employ a little outside assistance, but not much. He was convinced, the Commonwealth Government was convinced, and the other States of Australia were convinced that the white man could carry it on without difficulty, and Lancashire spinners who were interested in getting their supplies of cotton from within the Empire ought not to ignore the fact that Australia could produce cotton and that cotton could be produced without black

labour. It was an erroneous idea to think that cotton could only be produced by black labour.

Their aim was to produce only the best quality. The Government had suppressed the ratooning of the cotton plant and had made it illegal to allow shrubs or any debris to lie on the ground. Arrangements had been made for their destruction by the end of the season. Measures had been taken to prevent disease, and they tried to breed only pure type seed, so that they could supply nothing but the best cotton to Lancashire. There were 7,000 acres of Durango seed under cultivation, and by next year there would be sufficient seed of this type to supply their needs.

Lancashire might co-operate with Australia in this matter. They were not looking for spoon-fed treatment at the hands of the Lancashire people, but if it was desired to have an Empire self-contained in the matter of cotton production Australia was bound to enter very largely into Lancashire's calculations. He had not the slightest doubt in his mind that Australia would be an important factor, and he hoped that any prejudice they might have arising from the fact that white labour only was engaged in the new industry would be removed. They were adopting up-to-date methods, and experiments had already been conducted with a cotton picking machine.

In conclusion Mr. Theodore expressed the hope that in the course of a few years there would be a great trade between Queensland and the port of Manchester: that they would have many ships loaded up with cotton lint, as there were ships loaded with wool, coming up the Ship Canal from Australia. It was no exaggeration to say it had become a fixed belief in the minds of many responsible people in Australia that the cotton industry would some day exceed in value to the country the wool industry. The wool industry produced £70,000,000 to £80,000,000 per annum, and there was no reason why the cotton industry should not do likewise.

(Extracted from *Textile Mercury*, 15th March, 1924.)

## COTTON GROWING COSTS IN QUEENSLAND.

The following estimate of the cost of cotton cultivation in Queensland was quoted by Mr. Theodore in the course of his speech:—

	AVERAGE OF FOUR FARMS.						PER ACRE
	£	s.	d.				
Ploughing twice	..	..	..	..	..	..	1 13 9
Harrowing twice	..	..	..	..	..	..	0 5 3
Planting..	..	..	..	..	..	..	0 3 9
Horse cultivating	..	..	..	..	..	..	0 8 3
Chipping and thinning	..	..	..	..	..	..	0 4 3
Cost of picking yield of 880 lbs. at 2d. per lb.	..	..	..	..	..	..	7 6 8
Bagging and cartage	..	..	..	..	..	..	0 6 6
Total ..	..	..	..	..	..	..	£10 8 5
i.e., per lb. of seed cotton	..	..	..	..	..	..	0 0 8



## Brazilian Cotton.

*F. Albrecht & Co., Liverpool, report under date 24th March, 1924 :*

In a previous report we had occasion to draw attention to the unfavourable prospects of the growing crop in Brazil, and regret to say that conditions in the course of the season have fully confirmed the pessimistic view, at least so far as the size of the crop is concerned. The season's imports to Liverpool to date amount to 53,567 bales, and the stock at the time of writing is 31,920 bales, compared with 47,000 last season and 73,000 in the previous year.

Our cable advices in January last informed us that the Matta crop was finished to all intents and purposes, and the difficulty we have experienced in obtaining offers from the Seridó districts shows also that little of this growth can be obtained until new cotton is available. Sertão cotton for export has hardly come into question during the whole of the season. This shortage of supplies has naturally brought with it an advancing basis in Brazil, which has rendered business doubly difficult ; in fact our cables state that owing to the firm attitude of growers and holders, and the advanced rate of exchange, business has become paralysed. The position will probably adjust itself in due course, and it is fortunate from a business point of view that these difficulties have occurred just at a time when the shortage of supplies of cotton would in any case have put an end to Brazilian exports for the present season.

The demand on this side, both from local and continental sources, has been relatively good considering the poor inquiry from which we suffered for such a prolonged period. Generally speaking, Brazils have not participated in the recent revival of demand for export account from Liverpool stock, probably owing to the fact that the bulk of the Brazil cotton lying in Liverpool is not of very desirable quality. It will, however, no doubt all find a home in the course of the coming summer. Fair Pernams are quoted to-day at 17·52d., at which price they are on a very attractive parity compared with other growths, particularly Egyptian Uppers, which are quoted at 20·80d. for fully good fair. Unfortunately the depression in Lancashire continues, perhaps even on a more accentuated scale than heretofore, and it is due to this fact alone that the demand for Brazil cotton ex Liverpool stock has not been on a larger scale.

With regard to prospects for the next crop, the following extract from a letter lately received may be of interest :

" Abundant rains have come down lately all over the interior of Parahyba and Pernambuco, causing great inundations in the lower districts near the coasts, and occasioning considerable traffic interruption. Much damage has been done, plantations and villages being destroyed ; but these rainfalls, heavy as they have been, will prove a blessing for the Sertãos and the whole of the interior of the States affected, as they have put an end to the prolonged drought and guaranteed the next Sertão cotton crop. In the Seridó districts, too, abundant rainfalls are reported, and expectations for a regular cotton crop are good."

### **"OUTSIDE GROWTHS." SUMMARY OF PRESS INFORMATION.**

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**PERU.**—Crop much damaged by a pest hitherto unknown.

**BRAZIL.**—Drought with late rains are reported to have considerably reduced the large estimated increase of production. One American observer places the maximum yield at 450,000 bales

**PARAGUAY.**—Season's production estimated at 17,500 bales of 500 lbs. gross.

**ARGENTINE.**—Acreage estimated at 154,834 acres and crop at 175,000 bales.

**MEXICO.**—1923 crop estimated at 75,000 bales. Laguna crop for 1924 forecasted to be one-fourth of normal.

**SUDAN.**—Season's crop estimated at 35,000 bales of Sakellarides and 7,500 bales of long staple American. British Parliament adds £3,500,000 to the guarantee of £9,500,000 for irrigation works in the Gezira plain.

**BRITISH CENTRAL AFRICA.**—Uganda crop estimated at 120,000 bales ; that of Northern Nigeria at 15,000 bales, and of Tanganyika at 10,000 bales. Considerable railway development projected.

**FRENCH AFRICAN COLONIES.**—1923 production estimated at 6,000 tons of ginned cotton.

**CONGO BELGE.**—1923 crop inferior to that of 1922 owing to drought and lack of transport.

**SOUTH AFRICA.**—Railway projected from Sombele on the Zululand Railway to the Pongola River.

**CHINA.**—1923 crop estimated at 8,310,355 piculs by the Chinese Cotton Mill Owners' Association.

**IRAQ.**—Deliveries at the Bagdad ginnery during 1923 season amount to 1,100 bales of 400 lbs.

**AUSTRALIA.**—Total production in 1922-23 approximately 8,000 bales of 500 lbs.

**RUSSIAN TURKESTAN.**—1923 crop reported to be 4,200,000 poods.

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## REPORTED LARGE COTTON CROP IN ARGENTINE IN 1923-1924.

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According to recent cabled Press reports from Buenos Aires, present indications are that the current season's cotton production in Argentine will much exceed all previous records, the crop now promising to make a really considerable addition to the world's supply of cotton. The prospective yield of lint cotton in Argentine this season is stated by the reports to be 40,000 metric tons. As the metric ton is equivalent to 2,204·5 lbs. avoirdupois, this estimated yield, if realized, would equal approximately 176,000 bales of 500 lbs. gross weight. The reports add that this relatively large production is the immediate result of the encouragement which the Argentine Ministry of Agriculture is giving to cotton growing in the Northern Provinces of Argentine, which are said to offer climatic and soil conditions capable of making Argentine a great cotton-producing country. It may, perhaps, be added to this summary of cabled information from Buenos Aires that the increase of Argentine's cotton yield this year may conceivably serve to make good the shortage of the present crop in Brazil, and so not come into play to assist European spinners. This condition, however, would not necessarily be experienced in future years if the Argentine Government succeeds in its extensive plans for developing cotton growing. Pursuant to these plans the Government has now secured the services of two expert advisers from the United States. (*Economic World*, January 26, 1924.)

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## PROGRESS OF THE COTTON GROWING INDUSTRY IN SOVIET RUSSIA.

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(*Abstracted by the Eastern European Division from "Economic Life," Moscow, October 2, 1923.*)

The prospects in regard to the cotton crop in Russia in 1923-24 season, as outlined in a statement issued by the chairman of the Central Cotton Committee, are represented as follows : " In my opinion, no other Russian industry has shown such decided progress as did our cotton growing during 1923. The sown area under cotton in the spring of 1923 amounted to 150,000 dessiatines (405,000 acres) in Turkestan alone, which is more than three times the sown area of 1922, and a yield of cotton from five to six times as large as in 1922 is anticipated. In other cotton growing sections, like Bokhara, Khiva, Azerbaijan, Georgia and Persia, the improvement in cotton growing is as good, and the yield of fibre per acre has increased in all sections. The cotton ginning situation has also improved ; the work has been concentrated in the best ginning plants in 1923, and in 1924 there will be in Turkestan 21 well-equipped plants, besides a few emergency ones. The same situation prevails in other

sections. Further development of cotton growing in the entire territory seems assured, and commencing with next year the requirements of our cotton industry will be fully covered by domestic cotton. The calculations of the Central Cotton Committee are based on the programme of doubling the sown area under cotton in the campaign of 1923, as compared with 1922, up to nearly 1,100,000 acres. Much depends upon the satisfactory outcome of the marketing of the crop for the cotton planters; advantageous prices for cotton and prompt payment for it will have an encouraging effect upon the cotton planters and will stimulate cotton growing.

Apart from a number of steps taken by the Soviet Government in regard to re-equipment of the cotton gins and improving the selection of cotton seed, it is proposed to introduce American methods of cotton cultivation. For the latter purpose, the Government has commissioned two experts to study in the United States the best methods of seed selection and cotton ginning. (The experts have already arrived in the United States.)

During 1922-23, about 6,000,000 roubles gold have been appropriated for the reconstruction of the irrigation system of the Turkestan.

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## COTTON IN COREA.

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The Acting British Consul-General at Seoul reports as follows on the subject of Corean cotton :

"Native Corean cotton has for many years past been produced throughout the greater part of the peninsula, the only exception being the extreme north-east. The climate and soil are both favourable for the cultivation of the cotton plant, though the native variety is of poor quality only. American cotton was introduced in 1904 in North Zenra Province, which is now the principal district devoted to the crop, and, thanks largely to Government aid, considerable success has been attained, the area planted in 1921 being approximately 370,000 acres, and the crop amounting to 95,000,000 *kin* (1 *kin* equals 1.32 lbs.) mostly from the province named. Other provinces with considerable areas devoted to the cultivation of cotton are North Keisho and South Heian. The raw cotton is practically all sent to Japan, the total quantity exported in 1921 amounting to over 11,000,000 *kin*.

"Cotton cloth for native use is made almost everywhere in Corea. There are, however, no large factories, the industry being entirely a household one carried on by the simplest methods. The production of cotton cloth in 1921 is estimated to have amounted to 5,500,000 *tan* (1 *tan* equals about 12 yards), valued at yen 11,820,000. The yarn used is largely imported from Japan."

## Brazilian Government Legislation for the Promotion of Cotton Growing

Mr. Arno S. Pearse, the General Secretary of the International Cotton Federation, proceeded early in January to Brazil in accordance with a resolution adopted at the last meeting of the International Committee, principally for the purpose of obtaining from the Government some guarantee of continuity of benevolent interest towards cotton growing. The following decree is the result of Mr. Pearse's protracted negotiations with the President of Brazil, the Minister of Agriculture and the Chancellor of the Exchequer :—

“ DECREE No. 16,396, 27th February, 1924, regulating the concession of favours to Establishments or Companies legally constituted in Brazil for the development of cotton growing, ginning and the manufacture of cotton bye-products. (Translated from the Diario Official, 6th March, 1924.)

“ The President of the Republic of the U.S. of Brazil with a view to promoting the development of cotton production and having regard to the authority given by art. 28 of the law 3,991, 5th January, 1920, enlarged by art. 177 of the law 4,793, 7th January, 1924, decrees :

“ ART. 1. The establishments or companies legally established in Brazil for the development of cotton growing, ginning and manufacture of bye-products will be able to avail themselves of the following favours, provided that no monopoly of production is permitted :

- I. Exemption of import duties during a period of fifteen years on :
  - (a) Machinery, apparatus, instruments and any accessories suitable for carrying out the agricultural work and the ginning of cotton.
  - (b) Tractors and means of locomotion.
  - (c) Natural and chemical manures, Paris green, lead arsenate or any other insecticide or fungicide.
  - (d) Machinery, apparatus and accessories intended for the extraction and improvement of cotton-seed oil and the preparation of cotton-seed meal and cake.
  - (e) Instruments and materials intended for the chemical laboratories for purposes of analyses or for investigations which might be necessary for the objects of the establishments or companies.

- II. Free transport on the railways and steamship lines of the Federal Government not only for selected seeds, but also for machinery, apparatus, instruments, tractors and other means of locomotion, manures and insecticides mentioned in par. 1; besides, the Government will assist towards obtaining a reduction of freights in case of ownership by private companies.
- III. Exemption from all Federal taxation which may by chance fall upon the cultivation and ginning of cotton and the manufacture of bye-products.
- IV. Reduced freights on railway and steamship lines of the Federal Government for cotton produced and pressed to a density of 350 kilos per cubic metre.

"ART. 2. The establishments or companies which desire to avail themselves of the favours stipulated in Art. 1, undertake to comply with the following :

- (a) Maintain yearly cotton growing on a minimum area of 1,000 hectares of land ; this area may be cultivated by the company, by their contractors or share-tenants.
- (b) Maintain fields for seed selection and for demonstration of modern methods of cultivation on an area of at least 100 hectares.
- (c) Maintain a modern plant for fumigating seed, for ginning and pressing cotton in or near the cotton growing area of the company ; the ginning factory to have a minimum capacity for handling in six months the cotton grown on 5,000 hectares.
- (d) Distribute free of charge in the district where the undertaking is established the seed produced and selected on the 100 hectares seed farm.
- (e) Permit the public to visit the fields mentioned under "a," and supply any necessary information.
- (f) Gin the cotton of the cultivators at the price current in other factories of the district.
- (g) Submit to the orientation and supervision of the Cotton Department of the Federal Government, to which all statistical data as to work done, production, methods applied, results obtained, etc., have to be furnished.

"ART. 3. The exemption of import duties mentioned in par. 1 of the preceding Article will only be granted if the machinery, apparatus, instruments, tractors, vehicles, manures and insecticides are not to be had in Brazil of a similar kind.

"ART. 4. The Government may grant loans by means of a mortgage-guarantee ; these are to be in accordance with the sums placed annually in the Budget at the Government's disposal. Such loans are to be made only to companies which intend to establish themselves in such cotton districts where so far no suitable installations exist and provided that they have obtained from the respective State Government a reduction of the export duties for the same period as the Federal Concession runs.

"ART. 5. The reduced freights mentioned under IV, Art. 1, must not be lower than the actual cost of transportation.

"ART. 6. The Federal Government will use its good offices, in order that the concessionary company may obtain, for a period of 15 years, a reduction of the 'imposts' and taxes from the individual State and from the Municipality that may by chance become payable by the establishments and on their products.

"ART. 7. The establishments or companies which desire to avail themselves of the favours granted by this decree are obliged to terminate their installations within the time stipulated in the various contracts, subject to a fine of nullity, if the work or the service be stopped for a longer period than 90 consecutive days, except in a proved case of *force majeure*, to be decided by the Government ; in case of nullity the company has to restore to the Treasury the amounts of the conceded exemptions.

"ART. 8. All orders to the contrary are revoked hereby.

Rio de Janeiro, 27th February, 1924 ; 103rd of the Independence  
and 36th of the Republic.

ARTHUR DA SILVA BERNARDES.  
MIGUEL CALMON DU PIN E ALMEIDA.  
R. A. SAMPAIO VIDAL."

Mr. Pearse reports that the cotton crop of the State of São Paulo is considerably larger this season than last. The cotton is now being picked. Whilst formerly the army-worm did a great deal of damage the effect of this insect pest is being less felt, principally because the cultivators have learnt the lesson of timely use of Paris green. A very large number of workers have left the coffee plantations and have bought small holdings

in that extremely fertile section in the eastern portion of the State which was opened up by the Sorocabana Railway a few years ago. Thousands of small settlers, amongst whom are many Japanese and Germans, are growing cotton there and in many cases the first year's crop has sufficed to pay for the land. Yields of 500 lbs. lint per acre are quite common in that part and some obtain even higher yields. The Japanese, as a field labourer working for someone else, is useless, but once he buys a piece of land and works for his own account he applies himself with energy and determination which cannot be easily matched. There are now over 25,000 Japanese working in São Paulo and they have contributed in no small degree to the State's prosperity.

Reports to hand from *Minas Geraes* show that the cotton crop there has been more than doubled ; the existing ginning machinery is unable to cope with the quantity and the river steamship company on the São Francisco has had to curtail its itinerary, as the steamers are being filled with cotton at near ports. All first-class passenger accommodation on these steamers has been done away with and the space is being taken up by cotton bales for shipment to Pirapora, where the only modern gin of the State is.

In *Ceará* the cultivators have done so well out of the last season's cotton crop that the people gave themselves up to rather luxurious and riotous living, so much so that the President of the State issued a manifesto exhorting the people to make economies and use the large amount of money which they had received from cotton in furtherance of more extensive plantations this season. There will no doubt be planted this month a much larger area than before.

In *Rio Grande do Norte* and *Parahyba* the cotton crop was not satisfactory in volume, but prices made up for the lesser quantity. How much some of the cultivators have profited this last season was brought home to the writer when he examined the audited accounts of one firm. The cost of producing cotton, including a fair amount for rent, administration, animals, labour, etc., came to less than 7½d. per lb. lint ; the cotton from this farm was sold in Liverpool at 20d. per lb.





## CONSUMPTION AND STOCKS OF COTTON IN U.S.A. FEBRUARY 1924.

The report of the Census Bureau on the domestic mill consumption of cotton during February and stocks of cotton on hand on February 28 is as follows :—

	In thousand bales			
	1924	1923	1922	1921
Consumption of lint .. .. ..	508	367	473	395
Stock of lint in manufacturing establishments	1,578	2,022	1,597	1,327
Stock of lint in warehouses and at compresses	2,485	2,804	4,222	5,508
Export of lint and linter, .. .. ..	482	360	338	498
Number of active spindles .. .. ..	32,684	35,308	38,797	82,497

Including 22,100 lbs plain and 7,300 other foreign.

|      70,300      "      13,400      "

|      21,000      "      12,100      "

Reuter's Trade Service, Washington, March, 1924.

The above statistics bring the total consumption of U.S. mills for the first seven months of the season up to 3,595,000 bales, of which 3,412,000 is composed of American cotton. This compares with 3,839,000 bales (3,658,000 American) at the same date last year.

The consumption of linters in February amounted to 40,000 bales, making a total linter consumption of 323,000 bales for the seven months.

## MASSACHUSETTS TEXTILE OPERATIVES' WAGES.

SOURCE : *Massachusetts Department of Labour and Industries.*

Union rates of wages for textile operatives in Massachusetts at present range from two to two and one-quarter times those prevailing on October 1, 1913, but vary in general from 10 to 20 per cent. below the 1920 scales. Union rates of wages are not as good as index for the textile industry as piece rates (the usual form of payment), but, because of the diversity in the units of payment and the lack of uniformity in reporting, the Massachusetts Department of Labour and Industries has not thought it advisable to collect yearly piece-rate figures for the textile industry. The table following has been compiled from the annual reports of the Department and it is thought will be useful in illustrating trends. The 1923 figures are a preliminary tabulation subject to minor corrections upon verification.

## UNION RATES OF WAGES FOR MASSACHUSETTS TEXTILE OPERATIVES JULY 1, 1923, 1922, 1920, AND OCTOBER 1, 1913.

		1923	1922	1920	1913
Adams :		\$	\$	\$	\$
Slashers ..	..	33.65			—
Slasher tenders ..	..	28.25	25.10	32.40	—
Loomfixers ..	..	31.70	28.20	36.50	11.58
Beamers ..	..	28.50	25.35	32.65	—
Weavers (sample) ..	..	26.00	25.00	—	—
Chicopee :					
Loomfixers ..	..	29.97	26.61	38.36	15.00
Fall River					
Loomfixers—	..	..			
Magazine looms ..	..	31.18	26.74	—	—
Plain looms ..	..	28.12			
Slasher tenders ..	..	26.40	23.04	29.19	12.30
Roll coverers (yarn finishers) ..	..	18.50	18.00	—	—
Fitchburg					
Loomfixers ..	..	30.00	25.00	36.10	—
Beamers ..	..	27.00	22.50	—	—
Spinners ..	..	25.50	21.25	—	—
Weavers ..	..	25.50	21.25	—	—
Carders ..	..	21.00	20.00	—	—
Great Barrington .					
Loomfixers ..	..	33.78	30.03	38.75	—
			27.72	35.77	—
Beamers ..	..	32.16	26.02	34.13	—
Slasher tenders ..	..	29.28	—	32.90	—
Lawrence .					
Loomfixers—					
Magazine looms ..	..	36.24	32.16	41.28	—
Plain looms ..	..	36.00	31.92	40.32	16.20
Lowell			31.20		
Loomfixers—					
Magazine looms ..	..	34.90	31.95	39.00	13.50
Plain looms ..	..	32.80	29.17	37.65	12.50
Slasher tenders—					
Coloured goods ..	..	33.19	29.50	38.07	—
Plain goods ..	..	30.30	26.93	33.46	—
Ring spinners' fixers ..	..	27.00	21.00	31.20	—
New Bedford .					
Loomfixers ..	..	33.75	30.00	—	15.70
Warp twisters ..	..	32.65	29.30		15.40
					16.00
Slasher tenders—					
Coloured goods ..	..	31.73	28.20	36.38	—
Plain goods ..	..	28.16	25.23	32.57	—
Loomfixers (changeovers) ..	..	29.75	26.10	—	—
Twist tenders—					
12 sides ..	..	28.45	25.00	—	—
10 sides ..	..	23.68	21.00	—	—
Doffers ..	..	19.51	15.00	25.00	—
Salem :					
Loomfixers ..	..	..	32.10	41.40	15.00
Slasher tenders ..	..	..	25.05	—	—
Weavers—					
Men ..	..	..	18.00	—	—
Women ..	..	..	12.00	—	—
Taunton :					
Loomfixers—					
Magazine looms ..	..	35.78	27.26	35.19	14.00
Plain looms ..	..	30.63			

## INDIAN COTTON MILLS YARNS AND CLOTH PRODUCTION.

The latest statistics available of yarn and cloth production in Indian mills cover the first eight months of the 1923-24 fiscal year. The compilation of these statistics is carried out by the Commercial Intelligence Department of the Government of India.

### COTTON YARN PRODUCTION.

(In thousands of lbs.)

	Eight months—April to November				Increase or decrease of 1923 as compared with 1922	
	1923	Imports	1922	Imports	Production	Imports
No. 1 to 25	175,673	3,618	122,500	6,311	-47,127	-2,693
No. 26 to 40	71,560	15,017	16,540	23,256	5,420	-9,239
Above 40	2,050	5,860	1,511	1,713	1,519	7,1147
Total	129,592	24,525	170,881	31,310	-41,289	-9,785

### COTTON CLOTH PRODUCTION.

(In thousands of yards)

	Eight months—April to November				Increase or decrease of 1923 as compared with 1922	
	1923	Imports	1922	Imports	Production	Imports
Shirtings and Longcloths	307,261	-	323,410	-	-16,149	--
T-cloths, domestic, and sheetings	50,692	-	51,689	-	-2,997	--
Dhutis	26,139	-	278,163	-	15,024	-
Chadar	13,102	-	12,750	-	+142	-
Total—Greys and whites	924,263	719,575	836,028	833,916	-11,765	-134,341
Coloured goods	358,432	242,508	300,389	116,734	58,043	-103,774
Total—Piece goods	1,192,695	962,083	1,136,417	980,650	146,274	-28,567

The value of goods woven in Indian mills as far as reported was Rs74 lakhs in November, 1923, and Rs36,69 lakhs in the eight months, April to November, 1923, as compared with Rs5,27 lakhs and Rs39,36 lakhs, respectively, in the corresponding periods of 1922. The value of cotton goods imported from foreign countries in November, 1923, was Rs5,29 lakhs, and that in the eight months, Rs38,69 lakhs, as compared with Rs5,72 lakhs and Rs38,55 lakhs, respectively, in the corresponding periods of 1922.

## TEXTILE MACHINERY : IMPORTS AND EXPORTS.

The imports of textile machinery into the United Kingdom during the month of February amounted in quantity to 260 tons, and £61,752 in value, as compared with 233 tons and £58,121 in February, 1923. The exports in this branch of our overseas trade amounted to 8,839 tons, valued at £926,466, a decrease of 3,611 tons and £572,125 in value as

compared with February of last year. More textile machinery is now being sent to Russia, but Germany has decreased her takings. Netherlands and France have also decreased their purchases, but other countries in Europe have increased a little. The Eastern countries have not been so active in this direction as they were formerly. The United States and the South American countries have, however, taken more than they did in the corresponding month last year. The following are the usual particulars of values for the months under review :-

To	TWO MONTHS ENDED FEBRUARY		
	1922	1923	1924
Russia .. .. .. .. ..	202	1,212	20,368
Germany .. .. .. .. ..	16,115	28,531	19,634
Holland .. .. .. .. ..	45,110	60,276	53,695
France .. .. .. .. ..	534,164	313,986	110,354
Other countries in Europe .. .. .. .. ..	277,000	452,089	364,888
China (including Hong Kong) .. .. .. .. ..	600,502	191,628	43,823
Japan .. .. .. .. ..	845,182	606,832	274,039
United States .. .. .. .. ..	2,49,981	155,324	150,110
Countries in South America .. .. .. .. ..	121,114	116,564	118,953
British East Indies .. .. .. .. ..	1,680,879	1,416,904	547,299
Australia .. .. .. .. ..	85,528	74,461	43,543
		86,007	97,304
Totals .. .. .. .. ..	4,597,080	3,533,904	1,844,010

(*Textile Mercury*, 15th March, 1924.)

### U.S. COTTON CONSUMPTION IN FEBRUARY.

The short month of February, according to the report of the Bureau of the Census, saw a reduction in cotton consumption as compared with both January and with February a year ago, though not so large as was expected. The reduction extended to the cotton growing states, but was more marked in the New England and other states.

	February		Seven months ending February 29	
	1924	1923	1924	1923
Cotton consumed, U.S. ..	507,876	566,803	3,595,436	3,839,780
Cotton States ..	349,759	356,098	2,422,741	2,440,074
New England States ..	182,974	170,411	987,188	1,181,503
All others ..	25,143	31,296	183,557	218,208
Linters consumed ..	41,698	47,296	325,053	389,052
Active spindles ..	32,683,786	35,304,423	—	—
Cotton States ..	16,269,204	16,080,159	—	—
New England States ..	14,714,820	17,402,294	—	—
All others ..	1,700,253	1,811,970	—	—

On hand, February 29	Cotton		Linters	
	1924	1923	1924	1923
In consuming estab. ..	1,578,272	2,020,900	123,099	137,583
Pub. stor. and compress... ..	2,185,009	2,803,304	87,087	45,052

Includes 22,372 Eg., 7,315 other for, 2,450 Am-Eg. and 507 Sea-island consumed, 70,254 Eg., 15,312 other for, 14,208 Am-Eg. and 8,045 Sea-island in consuming est., and 20,954 Eg., 12,098 other for, 15,519 Am-Eg. and 2,971 Sea-island in public storage 7-months' consumption, 184,482 Eg., 50,777 other for, 17,938 Am-Eg. and 3,071 Sea-island

## MANCHESTER MARKET REPORT.

*Baerlein & Sons, Ltd., Manchester, report as follows, under date 5th March, 1924:*

### COTTON PIECE GOODS.

The enquiry referred to in our last report has continued, but owing to the further weakening of cotton, offers are made too low, and makers are reluctant to base business on the faith of a decline in yarns that cannot be obtained at the moment. For India orders are numerous, but often are referred back for better prices. China buying of Whites has been fairly good but in few hands. For the Continent and markets generally lower prices are expected and quantities offered are small.

### COTTON YARNS.

The fluctuations in the price of American cotton have continued during the last fortnight, and the uncertainty as to the future of cotton values has caused consumers to buy with the greatest reserve and only to place orders for immediate requirements. The decline of the last few days has had an adverse influence on the demand, which has eased off both for Eastern and Continental markets. Yarn prices are comparatively firm, as, since our last report, spinners have decided that the American section should reduce working hours from 48 to 26½ per week. This has, of course, induced spinners to maintain and even advance their prices, hoping that with the decreased production a better demand will set in and better prices will be paid. It is certain that yarn prices have not fallen in proportion with the raw material, and it is hoped that a better margin will be obtained in the course of time for American yarns. India has made a few offers, most of which are, however, hopelessly out. Germany is still in the market for coarse counts and the Balkans have placed fairly large quantities.

Egyptian yarns show little change; spinners and doublers are well under contract and quick delivery is impossible to obtain.

Spot cotton is quoted 16·60 against 17·62 in our last.

Silver, 33½d. Bank Rate, + per cent.

*The following are translations of the above in French and German.*

#### TISSUS DE COTON.

La demande signalée dans notre dernier rapport a continué mais par suite de la baisse ultérieure du coton, les offres soumises ont été généralement trop basses et les producteurs sont relutants à spéculer sur des prix plus bas pour les filés que ceux pratiqués en ce moment.

Pour les Indes les offres sont nombreuses mais pour une grande partie des prix plus élevés ont dû être demandés. Des achats assez considérables en tissus blanchis ont été faits pour la Chine mais ces affaires ont été entre les mains de quelques firmes seulement.

Pour le Continent et les autres débouchés en général on s'attend à des prix encore plus bas, par conséquent les quantités traitées sont insignifiantes.

#### FILÉS DE COTON.

Les fluctuations dans le prix du coton Amérique ont continué pendant la quinzaine sous revue et l'incertitude concernant le futur des prix du coton a causé les consommateurs d'acheter avec la plus grande réserve et de placer seulement des ordres pour couvrir les besoins urgents. La rechute qui a eu lieu ces derniers jours a eu une influence adverse sur la demande qui s'est diminuée tant pour les marchés asiatiques que pour le Continent.

Les prix des filés sont comparativement fermes, car depuis notre dernier rapport l'Association des Filateurs a décidé que les heures de travail des filateurs de coton Amérique doivent être réduites de 48 à 26½ heures par semaine. Cette décision a naturellement eu l'effet d'induire les filateurs à maintenir et même d'avancer leurs prix dans l'espoir qu'en vue de la production fortement réduite une demande améliorée se présentera et que de meilleurs prix seront payés.

Il est certain que les prix des filés n'ont pas tombé à proportion de la baisse de la matière première et l'on espère que d'ici peu une meilleure marge sera à obtenir sur les filés américains.

Les Indes ont soumis des offres dont la plus grande partie a été indiscutable. L'Allemagne est toujours acheteur de numéros gros et le Balkan a placé des quantités assez fortes.

Les filés Jumels sont peu changés, les filateurs et retordeurs ayant assez d'ordres pour le moment, la livraison rapide étant pour ainsi dire impossible à obtenir.

Le Coton Amérique Disponible se cote aujourd'hui 16·60 contre 17·62 dans notre dernier rapport.

L'Argent se cote, 33<sup>3</sup>d. Taux en Banque, + pour cent.

#### BAUMWOLLGEBEDE.

Die in unserem letzten Bericht erwähnte bessere Nachfrage behauptete sich weiter, aber das neuerliche Weichen der Rohbaumwolle hat Käufer veranlasst, die Limite zu tief zu halten und Fabrikanten sträuben sich, Geschäfte abzuschliessen, die auf niedrigere Garnpreise basiert sind, da mit solchen — wie in unserem obigen Bericht angedeutet — vorderhand nicht gerechnet werden kann. Von Indien lagen zahlreiche Gebote vor, viele derselben mussten aber zwecks Aufbesserung zurückgewiesen werden. China kaufte ziemlich gut in gebleichten Geweben, das Geschäft darin lag aber nur in wenigen Händen. Der Kontinent und die Absatzgebiete im allgemeinen rechnen mit niedrigeren Preisen und kaufen zunächst immer noch von der Hand in den Mund.

#### GARNE.

Die Fluktuationen in den Notierungen für amerikanische Baumwolle hielten auch in den letzten beiden Berichtswochen an und die Un gewissheit in Bezug auf die weitere Entwicklung des Baumwollmarktes hat Käufer veranlasst, sehr vorsichtig zu operieren, sodass nur Aufträge für rasche Lieferung in den Markt kamen. Der Rückgang hat auf das Geschäft einen hemmenden Einfluss ausgeübt und sowohl die asiatische wie kontinentale Nachfrage hat etwas nachgelassen. Garnpreise sind verhältnismässig fest, da seit Abgang unseres letzten Berichtes die Spinner-Vereinigung, soweit amerikanische Garne in Betracht kommen, beschlossen bis auf weiteres nur noch 26½ Stunde pro Woche zu arbeiten. Dies hat Spinner veranlasst, Preise nicht nur aufrecht zu halten, sondern eher etwas zu erhöhen, hoffend, dass durch die reduzierte Produktion sich eine bessere Nachfrage bemerkbar machen wird und dass bessere Preise angelegt werden. Es steht fest, dass Garnpreise nicht im Verhältnis zur Baumwolle gefallen sind, Spinner hoffen aber mit der Zeit eine bessere Marge für amerikanische Garne erzielen zu können. Von Indien lagen einige Limite vor, die Preise waren jedoch vollständig aus der Richtung.

Deutschland ist noch immer Käufer gröberer Nummern und der Balkan hat ebenfalls ziemlich stark gekauft.

Egyptische Garne zeigen wenig Veränderung ; Spinner und Zwirner sind immer noch gut unter Kontrakt und es ist unmöglich rasche Lieferung zu bekommen.

Disponible Baumwolle quotiert 16·60 gegenüber 17·62 in unserem letzten Bericht.

Silber quotiert 33<sup>3</sup>d. Bankrate 4%.

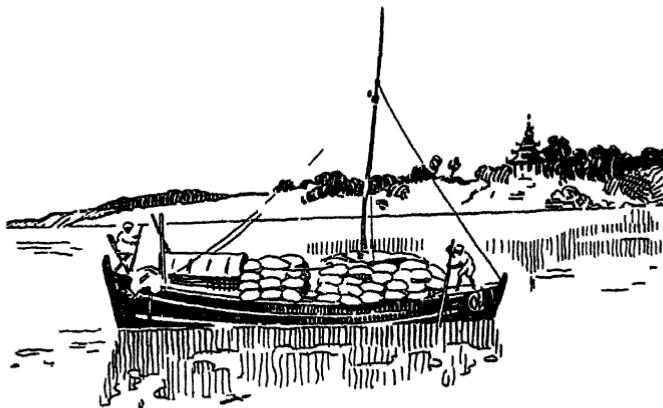
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REVIEWS.

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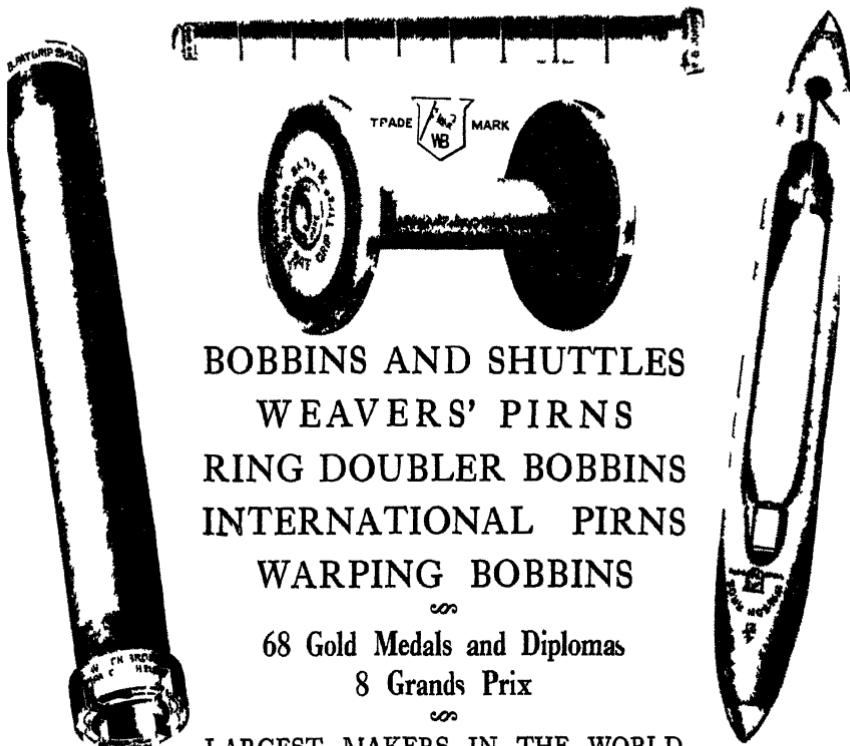
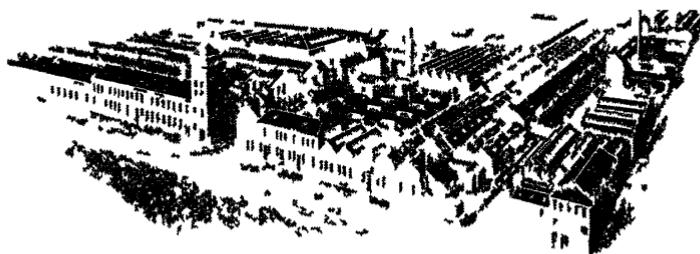
"THE M G C MANCHESTER YEAR Book, 1924." The latest edition of this year book contains a handy glossary of textile terms and several pages of cotton statistics which deserve attention for their precision. The usual description of Manchester's institutions and activities has been brought up to date. The editors may be congratulated on the improvement over previous years.

"THE EMPIRE COTTON GROWING REVIEW," Volume I, Part I. The first number of the quarterly of the Empire Cotton Growing Corporation contains a memorial of the late Mr J W McConnel by W Lawrence Balls, and articles on the Indian Central Cotton Committee by B C Burt and on Cotton in Tanganyika by R Cecil Wood. The statistical supplement is compiled by Mr J A Todd. Altogether a useful addition to cotton literature.



(1)

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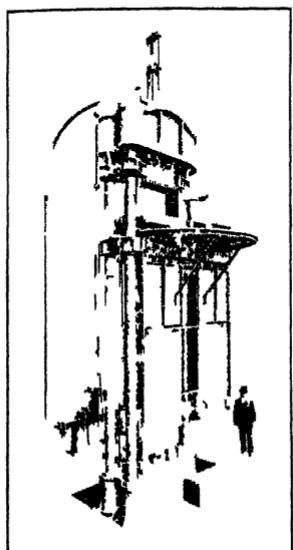
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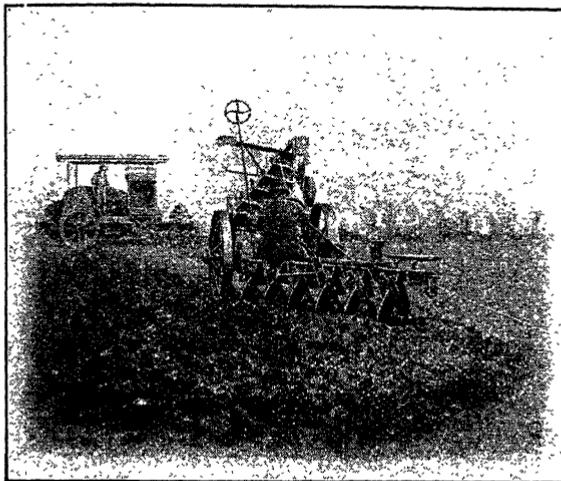
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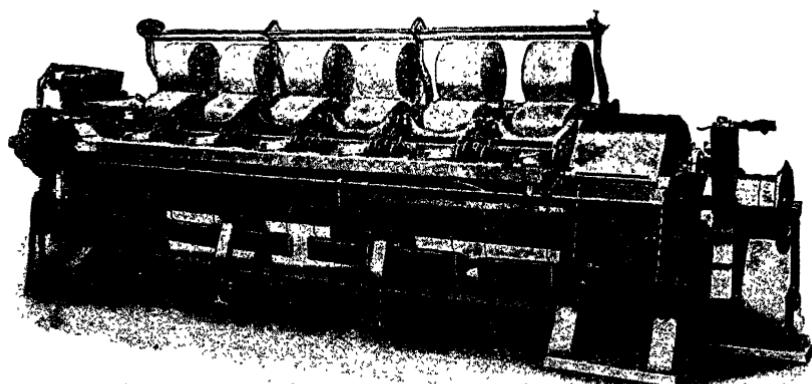
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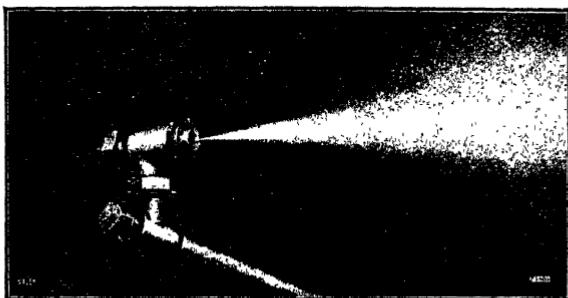


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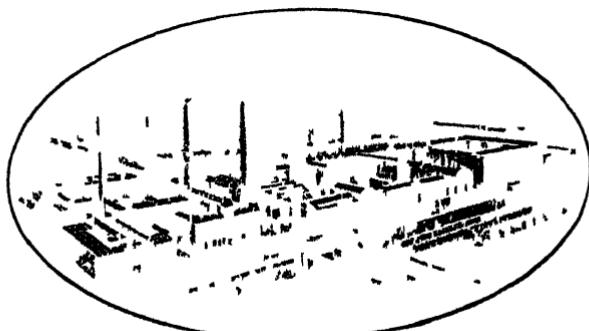
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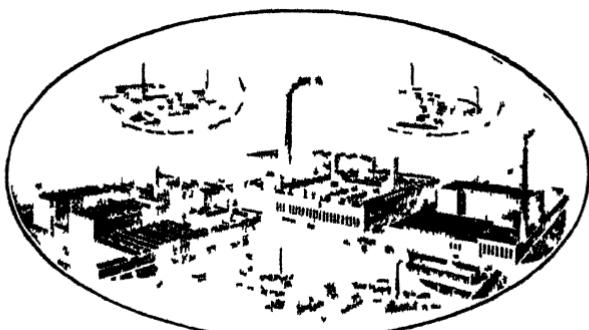
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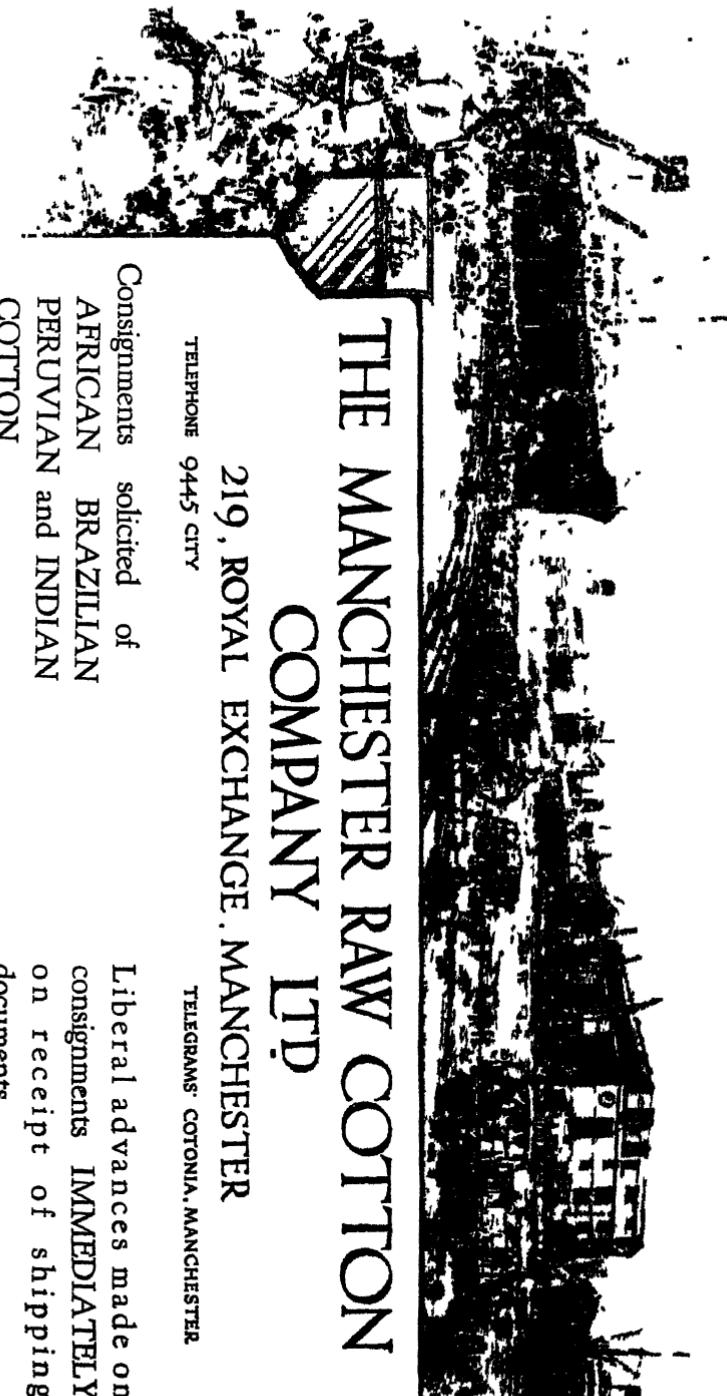
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# INTERNATIONAL COTTON BULLETIN

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No. 8

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June, 1924

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*Published by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester. Edited by Arno S. Pearse, General Secretary, Manchester. The Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations wish to point out that they do not hold themselves responsible for the statements made or the opinions expressed by individuals in this Bulletin.*

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## Editorial Notice.

IT was announced through the daily press and through letters and cables to the affiliated Associations that owing to unforeseen circumstances the International Committee at its meeting in Paris on the 25th April had unanimously decided to postpone the Twelfth International Cotton Congress, which was to have been held in Vienna during this month. A number of highly interesting papers had been prepared for this event and with the consent of the authors we publish several of these in this issue. Others are held over for the next issue. We would draw especial attention to the replies received on COTTON GROWING in answer to a questionnaire sent by us to various parts of the world. In this way we have endeavoured to collect information on the essential points which must be extremely useful in deciding which countries afford the most promising prospects of an early development on a commercial basis. Evidently some countries have arrived at that point where an extension of cotton growing by means of the establishment of plantation companies may be advisable. We avail ourselves of this opportunity of acknowledging the valuable assistance rendered to us by the Empire Cotton Growing Corporation in the work of collecting the answers to our questionnaire from the British Colonies.

The complex information on cotton growing in countries outside the U.S.A. should be read in conjunction with the very able paper contributed by Mr. Joseph A. Becker, Statistician of the Bureau of Agricultural Economics at Washington, entitled THE EFFECT OF THE BOLL-WEEVIL UPON THE COTTON PRODUCTION OF U.S.A. This authority does not present an encouraging picture for the next few years; he deals exhaustively with the subject from the statistical side on the basis of the vast amount of information available in his Bureau. This paper will be found highly instructive and should, later on in the season, be a guide to the individual spinner in forming an idea of the crop to be expected from the U.S.A. For those who are interested in advocating cotton growing in new countries this contribution must act as a forcible stimulus in still further concentrating efforts in this direction.

**Report of the MEETING of the Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations, held at Paris, in the Boardroom of the Syndicat Général de l'Industrie Cotonnière Française, 25th April, 1924.**

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There were present :

Messrs. John Syz (Switzerland), in the Chair, *President.*

F. Holroyd (England), *Vice-President.*

Comte Jean de Hemptinne (Belgium).

Giorgio Mylius (Italy).

F. A. Hargreaves (England).

Paul Schlumberger (France).

Roger Seyrig (France), acting as substitute.

G. Lederer (Austria), in absence of A. Kuffler.

A. Zucker (Czecho-Slovakia).

J. H. Hermann Bühler (Switzerland).

A. E. Håkanson (Sweden).

Arno S. Pearse, *General Secretary.*

John Pogson, *Assistant Secretary.*

R. A. de la Beaumelle, *Secretary of French Association.*

Apologies for non-attendance were reported from Messrs. Joan Gelderman (Holland), Konosuke Seko (Japan) and Santiago Trias (Spain).

The outstanding decisions arrived at were :

**POSTPONEMENT OF THE TWELFTH INTERNATIONAL COTTON CONGRESS.**

After careful consideration of this question, the following resolution was unanimously adopted :

"That owing to unforeseen circumstances the Committee deem it expedient to postpone the Twelfth International Cotton Congress, which should have been held in Vienna on the 12th, 13th and 14th June, 1924."

**VISIT TO U.S.A. COTTON FIELDS.**

In view of the success of last year's Mission to the U.S.A. cotton fields it was resolved that a Mission of not more than five members be appointed to visit the U.S.A. early in July for the purpose of investigating and reporting on the state of the cotton crop, on the same lines as last year. The appointment of the five members was left to the President and Vice-President of the International Federation.

**NEXT COMMITTEE MEETING.**

It was decided that, as soon as convenient after the return of the Mission to U.S.A., an extended Committee meeting be held; the date and place of such meeting to be left to the decision of the President and Vice-President.

Copies of the Minutes of the Meeting have been sent to the affiliated Associations.

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# COTTON GROWING

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WITH a view to collecting definite information on essential points such as to area cultivated, yield per acre, cost of production, facilities of transport, etc., the following questionnaire was prepared by the International Cotton Federation and submitted to well-known cotton authorities in the cotton-growing countries outside the U.S.A. and Egypt, and the following reports and articles represent the replies so far received. They will, to a great extent, enable a comparison of the conditions obtaining in the various countries. In some cases it was not possible to answer all the questions, and again in other cases the questions had to be slightly modified.

## THE QUESTIONNAIRE.

- (1) What is the area at present under cotton ?
- (2) What areas can be used for cotton in the future ?
- (3) What kinds of cotton are grown ?
  - (a) Annual American. What percentage ?
  - (b) Perennial tree cotton. What percentage ?
- (4) What is the time of planting ?
- (5) What is the time of picking ?
- (6) Labour conditions. What is the density of population in the cotton zones ?
- (7) What is the average crop of cotton (ginned) in your country ?
- (8) What is the average yield of cotton lint (i.e., fibre after separating from the seed) per hectare in kilos or per acre in lbs. ?
- (9) At what average price can the best cotton land be bought in your country ?
- (10) What is the cost of production of cotton per kilo or per lb. (English) expressed in English currency ? What agricultural wages are paid ?
- (11) What are the means of transport ?  
State the cost of same from plantation to seaport.
- (12) What insect pests are affecting your cotton ?
- (13) What system of ginning machinery is in use ? Saw or roller ?  
State number of ginning factories.
- (14) To what density are the bales pressed and what is their weight ?  
What makes of presses are in use ?
- (15) Is the Government of your country willing to support cotton growing by means of special concessions, and what form would they take ? For instance, a guarantee of principle and interest on a Debenture issue ?
- (16) Are any export taxes on cotton in force ?
- (17) What have been the exports of cotton from your country to Europe during the last five years ?
- (18) Describe length of fibre in mm. or inches and the grade on the basis of the American standards.

For information as to U.S.A., reference is invited to the numerous *Bulletins* of the Department of Agriculture, Washington, D.C., reports by Messrs. Arthur Foster and Arno S. Pearse on their last year's journey through the U.S.A. cotton fields, published in the INTERNATIONAL BULLETIN, No. 5. As to Brazil, the recently published books "Cotton in North Brazil" and "Brazilian Cotton" (for sale by the International Cotton Federation at 21s. each) give the fullest information, and the next issues of the BULLETIN will present an exhaustive statement by the official delegate of the Brazilian Government to the Vienna Congress.

If one considers that Texas, the most favoured cotton State of U.S.A., cannot produce cotton at less than 20 cents on the plantation and that in Georgia, Arkansas, cost of production is near 30 cents, it will be agreed, after studying the following replies to the questionnaire, that the necessity for extending cotton growing in countries outside U.S.A. is more urgent than ever. As the paper on the "Effect of the Boll-Weevil upon the Cotton Production in U.S.A.," by Mr. Becker (see American Cotton section of this BULLETIN) shows that we must not expect more than 13 million bales of cotton and possibly not more than nine millions, it is not to be expected that we shall see low-priced cotton for many years in U.S.A. whilst the other countries are able to supply similar cotton at reasonable rates though, unfortunately, still in small but increasing quantities. It cannot be expected that the Lancashire spindles will permanently work full time until the industry receives cotton supplies on an economic basis, and not at the high level of prices that has ruled during the last seasons, due to the falling-off in yield, high cost of land and the high wages of U.S.A.

This BULLETIN contains cotton-growing information from the following countries :

**BRITISH POSSESSIONS :**

	PAGES		PAGES
Ceylon .. .. .	427, 478	Rhodesia, North .. ..	448, 474
Cyprus .. .. .	428, 479	" South .. ..	445
Fiji .. .. .	429, 480	Sierra Leone .. ..	447, 476
Guiana .. .. .	477	South Africa .. ..	447
India .. .. .	481	Sudan .. ..	450, 467
Iraq (Mesopotamia)	483, 478	Swaziland .. ..	451
Kenya .. .. .	471	Tanganyika .. ..	471
Malta .. .. .	486, 479	Uganda .. ..	458, 469
Nigeria .. .. .	488, 475	West Indies Inset facing p. 453, 476	
Nyasaland .. .. .	438, 472	General Report by Empire	
Papua .. .. .	480	Cotton Growing Cor-	
Queensland .. .. .	441	poration .. ..	455
<b>ARGENTINE</b> .. .. .	.. ..	.. ..	480
<b>ASIA MINOR</b> .. .. .	.. ..	.. ..	481
<b>BELGIAN CONGO</b> .. .. .	.. ..	.. ..	496
<b>CHINA</b> .. .. .	.. ..	.. ..	487
<b>COLOMBIA</b> .. .. .	.. ..	.. ..	490
<b>FRENCH COLONIES</b> .. .. .	.. ..	.. ..	498
<b>KOREA</b> .. .. .	.. ..	.. ..	500
<b>PARAGUAY</b> .. .. .	.. ..	.. ..	508
<b>SOMALILAND (Italian)</b> .. .. .	.. ..	.. ..	510
<b>SPAIN</b> .. .. .	.. ..	.. ..	511

N.B.—As regards PERU reference is invited to p. 391-99, INTERNATIONAL BULLETIN No. 7.

## British Empire.

THROUGH the courtesy of the Empire Cotton Growing Corporation, London, the questionnaire of the International Cotton Federation has been sent to India and the British Colonies and the following are the replies obtained :

**CEYLON.** (*Replies by the Department of Agriculture, Peradeniya.*)

(1) *Total area under cotton.* 600 acres.

(2) *Possible extension.* There are considerable areas in Ceylon which are suitable for cotton cultivation, and it is expected that when the railway now under construction to Batticaloa is opened, further lands eminently suited for cotton cultivation will be afforded ready means of transport.

(3) *Varieties.* The cottons at present being grown are American Upland cottons, mainly Durango and Cambodia. The cottons are at present being sold to the Spinning and Weaving Mills, Colombo, which, however, do not require for their purposes a long staple-cotton.

(4) *Planting season.* The planting should be done with the first rains in the north-east Monsoon in October to November. Some planting in certain areas might also be done with the showers which are usually experienced in April, but so far all planting has been carried out in October–November.

(5) *Picking time.* February to May.

(6) *Labour.* In the areas considered to be most suitable for cotton cultivation the country is but sparsely populated, and any large capitalistic enterprise in cotton cultivation would be dependent to a certain extent on imported labour from India.

(7) *Average crop.* It is estimated that crop for the present year, 1923–24, will be between 300,000 and 400,000 lbs. of seed cotton, and the average output of lint may be estimated at 33½ per cent.

(8) *Yield per acre.* (a) 200 lbs. of lint cotton per acre should be secured in average areas. (b) Yields of 350 to 500 lbs. of lint cotton have been obtained in certain areas from the experimental plots.

(9) *Price of land.* There are large areas of land suitable for opening which can be leased from Government on leases for 99 years, at a rental of 2 per cent. of the assessed value for the first five years, and thereafter 6 per cent. of the assessed value of the land. The revision of assessment is made every 33 years, and in areas which Government are desirous of having opened up for cotton it is probable that the assessed value of the land would amount to between £2 and £4 per acre at the present time.

(10) *Cost of production.* The cost of growing a crop of cotton on land which is at present covered with jungle or scrub is estimated to be £8 per acre. This is the cost of opening on a Government Experiment Station, and upon an estate of over 100 acres which has been opened by the Spinning and Weaving Mills, Colombo. Subsequent crops of cotton are estimated to cost between £5 to £6 per acre. The wages which have been paid have averaged about 1/- per diem for adult male labour, 9d. per diem for women, and 6d. to 7d. for boys.

(11) *Means of transport.* Transport from cotton areas to the nearest

seaport can be carried out by cart or by the Government railway. The cotton which has been grown recently in the Hambantota area has been carted to that port and then shipped by steamer to Colombo.

(12) *Insect pests.* So far, cotton has not been seriously affected in Ceylon with pests or diseases. The pink and spotted boll-worm exist, but have not occasioned very serious damage up to the present. It is estimated that with suitable control over the planting seasons serious damage should not be done by these two pests. A caterpillar pest (*Cosmopila erosa*) did some damage last year. This pest exists on the malvaceous plants of the neighbouring jungles, but can be readily controlled by the use of insecticides. This year little or no damage has been done by this last-named pest. Scale insects also exist, but do not occasion any serious damage except during abnormally dry seasons.

(13) *Ginneries.* Roller gins are at present in use; the only gins of the country being in the possession of the Department of Agriculture and the Spinning and Weaving Mills of Colombo.

(14) *Bales.* Commercial exports of cotton have not been made from Ceylon in recent years and baling presses are not at present employed.

(15) *Government help.* The Government of this country is desirous of encouraging cotton cultivation in every way possible and is at present guaranteeing prices to native growers. For the present season all cotton will be delivered to the Spinning and Weaving Mills, Colombo, which have guaranteed its purchase at a fixed minimum price. Government is undertaking to see that growers receive this price, and will establish purchase centres under the supervision of Government officers in the Hambantota District.

(16) *No export tax.*

(17) There have been no commercial *exports* during the last five years.

(18) *Description of fibre.* The average length of fibre of cotton at present being grown is  $1\frac{1}{8}$  to  $1\frac{1}{4}$  in. for the American Upland, and 1 in. and  $1\frac{1}{8}$  in. for the Cambodia. The length of staple of the American Upland variety has fallen since its introduction into the Colony, but arrangements are being made by the Department of Agriculture for the selection of seed, and it is hoped thereby to maintain and, if possible, increase the present length of the staple. There are no arrangements at present possible for the accurate grading of cotton on a commercial basis.

#### CYPRUS. (*Replies by the Department of Agriculture.*)

(1) *Area under cotton.* Roughly 5,700 acres.

(2) *Possible extension.* Roughly 50,000 acres (a) wet and (b) dry.

(3) *Varieties.* Cotton is not graded here. The variety is a mixture of New Orleans, Sea Island and Allen's.

(4) *Planting time.* March to June, inclusive.

(5) *Picking time.* August to October, inclusive.

(6) *Labour.* About 85 persons per square mile.

(7) *Average crop.* For the island the average is about 2,200,000 lbs. and lint produced 725,000 lbs.

(8) *Average yield.* For dry, about 96 lbs. per acre; for wet, about 540 lbs. per acre.

(9) *Price of land.* (a) Dry cotton land can be purchased at about £18 per acre; wet cotton land at £40 per acre. (b) Rented dry cotton land at £3 per acre per annum; wet cotton land at £10 per acre per annum.

(10) *Cost of production.* Dry, 4d. per lb. lint; wet, 2d. per lb. lint. *Wages:* Men, 2/- per day; women, 1/- per day.

(11) *Transport.* 1/2 average per cwt. to nearest port from all chief cotton-growing areas, by camels, carts and railway.

(12) *Diseases.* Cotton boll-worm and fumagine.

(13) *Saw and roller gins.* There are 26 ginning factories.

(14) *Hand and hydraulic bale presses* are used, mostly of British manufacture. Pressure, 1 ton per square inch. Weight, about 4 cwts.

(15) *Government help.* Suitable land for cotton growing can be purchased at reasonable rates. It is not feasible for the Government to purchase privately grown cotton or to introduce any system of guaranteed prices. Local legislation provides for the registration of co-operative trading and agricultural societies, which have full borrowing powers. It would not be possible to guarantee the principal or interest on any loan.

(16) *Export duty.* 8 per cent. *ad valorem.*

(17) *Average export* for last five years: 7,566 cwts. to United Kingdom, France, Greece, Syria, Turkey.

(18) *Description of fibre.* Good middling in grade; staple, 28 mm. (1 $\frac{1}{8}$  in.); strong; worth 125 points over the current month of American cotton, say 20·75d., based on January, 1924, at 19·50d.

#### FIJI. (*Replies from the Agricultural Department, Suva.*)

(1) *Area under cotton.* Estimated area 1923-24 crop, 1,000 to 1,200 acres.

(2) *Possible extension.* Rough estimate 3,000 to 5,000 acres for the next three years, possible 10,000 acres for cotton in small areas.

(3) *Variety.* Sea Island (*Gossypium barbadense*), 100 per cent. (See also reply to 18.)

(4) *Planting time.* November to end of January; abnormally dry year, to end of February. Late planting curtails picking; 20 per cent. of crop lost, due to close season which commences October 15, when all plants have to be uprooted and burned.

(5) *Picking time.* June to October.

(6) *Labour.* Existing zone, 30,000 to 40,000 Indians and Fijians (approximately).

(7) *Average crop.* For 1923, 131,200 lbs., 33,070 lbs. lint exported.

(8) *Ginning outturn.* (a) 25 per cent. (b) 27·5 per cent.

(9) *Price of land.* Not in large areas suitable for cotton growing; there is no freehold; lease 99 years. Rental average, 7/- per acre.

(10) *Cost of production.* Indian and Fijian growers have still a lot to learn with regard to cultivating, picking and marketing. At the present time it costs an intelligent Indian ryot on an average of 1½d. per lb. of seed cotton delivered ginnery. Wages, 1/9 to 2/-.

(11) *Means of transport.* Transport means are very unsatisfactory; at present the industry depends upon the goodwill and generosity of the Colonial Sugar Refining Co., Ltd., which has the monopoly of the sugar business—the primary industry—whose railway fringes the coast and cotton zone. Should cotton clash with this company's interests, they would stop carrying cotton. Most of the seed cotton is either sleigh-drawn, pack, mule or pony and headloads along sleigh and bridle paths to the railway. Roads are very poor; Indians and Fijians have no wheeled vehicles for carting produce. Coastal freight is abnormally high and will probably isolate the smaller surrounding islands from cotton markets.

(12) *Insect pests.* Pink boll-worm (*Gelichia gossypiella*); has indigenous hosts; 1922-23 crop did not suffer from this pest.

A very careful lookout was kept for the ravages of this pest, both in field and factory work, and it can be safely said that no damage was done to the crop.

Cotton stainers (*Dysdercus*) are fairly general throughout the zone and apparently did no harm to the crop.

Shield bug (*Tectocoris lineola*) fairly general along the coast and to within 1½ miles inland, then it disappears.

Tip worm (*Earias fabia*) general throughout the zone; can be controlled and will not be a serious pest as it was at one time expected to be.

Anthracnose and scale (*Lecanium*) occasionally found.

(13) *Ginneries.* Single roller, single acting Platt gin, leather roller; one factory.

(14) *Bales.* 13 to 14 lbs. to the cubic foot. Hand press. Size of bale for export, 4 ft. 2 in. × 29 in. × 29 in.; no hoops or lashing used. Net weight of bale, 330 lbs.

(15) *Government help.* This Government has purchased and erected a ginnery for treatment of cotton grown in the Colony, and employs a Cotton Inspector who undertakes the collection, ginning and shipment of cotton on behalf of growers. No charge is made to growers on account of the salary of the Cotton Officer or for interest on the capital expenditure on the plant. In addition, this Government, last year, made advances to growers for seed cotton delivered at the ginnery or at certain centres in the various districts. The Government undertakes the shipment and marketing of the crop, and any surplus proceeds, after deduction of advances, will be distributed to growers.

(16) *No export taxes.*

(17) *Exports.* Nil. Last shipment was made in 1916; approximately 2,000 lbs. Sea Island to England.

(18) *Description of fibre.* The 1922-23 crop, owing to it being an entirely new and strange crop to the cultivators, many planted on

unsuitable lands, the average area planted being only 1·5 acres. Many arrivals of small quantities stretched over five months, complicated typing and grading, and conditions did not warrant the extra cost of very careful selection. Four grades have been shipped, mainly on class.

Staple of A and B grades .. .. .. ..	$\frac{7}{8}$ in. full
Staple of C and D grades .. .. .. ..	$1\frac{1}{2}$ in. full

#### Crop in general :

Colour .. off	Staple .. irregular
Strength .. good	Crop .. neppy
Class .. fair	

Reports are awaited on the 101 bales consigned to the British Cotton Growing Association.

Standard samples of the Liverpool market types will be called for, on which all future types will be based.

Pima cotton (pure) <i>herbaceum</i> ,	$1\frac{1}{2}$ in. staple
Cambodia " <i>hirsutum</i>	$1\frac{1}{2}$ in "
Durango	$1\frac{1}{2}$ in. " (Upland variety)

The above varieties have been planted on a small scale for experimental purposes for 1924, on account of the depressed state of the Sea Island market and the scarcity of labour for picking Sea Island.

#### INDIA. (*Replies by the Indian Central Cotton Committee, Bombay.*)

##### (1) *Area at present under cotton.*

The area of the current (1923-24) crop, as stated in the Fourth Memorandum, which is final for all provinces except Madras, is 22,941,000 acres. The average for the last 10 years is 21,840,000 acres.

##### (2) *Areas which can be used for cotton in the future.*

The Indian cotton area depends mainly on two factors :

- (i) Nature of the monsoon, which causes large annual fluctuations ;
- (ii) The price of cotton, and more particularly the relative price of cotton to other agricultural produce.

Broadly speaking, it may be stated that the cotton area in India responds to price movements. The most important additions in the future are likely to be :

- (a) In Sind, due to the new canal scheme, say 800,000 acres ;
- (b) In the new Canal Colonies in the Punjab, say 500,000 acres.

If prices remain favourable there may be further increases also on the existing canals as cultivation develops. The highest Indian cotton area on record in recent years is 25,000,000 acres.

(3) A copy of the *trade classification* statement for the Fifth Cotton Report, 1922-23, and Fourth Cotton Report, 1923-24, is attached. This states production classified under the various trade names.

## TRADE DESCRIPTIONS

Descriptions of cotton	Issued on April 23, 1923		Issued on Feb 21, 1924	
	Acres (thousands)	Bales of 400 lbs (thousands)	Acres (thousands)	Bales of 400 lbs. (thousands)
	1922-23	1922-23	1923-24	1923-24
Comras :				
Khandesh .. .. ..	1,313	314	1,394	284
Central India .. .. ..	1,413	290	1,448	222
Barsi and Nagar .. .. ..	2,165 <sup>1</sup>	627 <sup>1</sup>	1,974	378
Hyderabad-Gaorani .. .. ..	1,430	451	1,400	500
Berar .. .. ..	3,302 <sup>1</sup>	1,200	3,820 <sup>1</sup>	1,020
Central Provinces .. .. ..	1,401		1,381 <sup>1</sup>	
Total .. .. ..	11,088	2,882	11,117	2,604
Dholleras .. .. ..	2,004	488	1,965	288
Bengal-Sind :				
United Provinces .. .. ..	639	178	652	215
Rajputana .. .. ..	396	102	406	92
Sind Punjab .. .. ..	1,284	395	1,647	526
Others .. .. ..	85	16	85	17
Total .. .. ..	2,424	691	2,790	850
American :				
Punjab .. .. ..	382	117	599	284
Sind .. .. ..	7	4	5	3
Broach .. .. ..	1,095	271	1,176	208
Coompta-Dharwars .. .. ..	863	139	1,501	221
Westerns and Northerns .. .. ..	1,597	177	1,958	170
Cocanadas .. .. ..	272	52	254	50
Tinnevellys .. .. ..	589	154	685	175
Salems .. .. ..	171	23	176	22
Cambodias .. .. ..	308	120	329	138
Comillas, Burma and other sorts .. .. ..	409	78	436	84
Grand total .. .. ..	21,154	5,196	22,941	5,042

\* Includes the cotton grown in the non-Governmental areas in Hyderabad.

## (4) and (5)

## NORMAL DATES OF SOWING AND PICKING COTTON IN VARIOUS AREAS.

(Extract from page 21 of *Bombay Cotton Annual, 1921-22.*)

	Date of Sowing	Date of Picking
Dholleras <sup>1</sup> .. .. ..	July 1 to August 5	January to April.
Broach .. .. ..	June 20 to July 20	January to April.
Comras .. .. ..	June 15 to July 15	October to January.
<i>Barsi-Nagar.</i>		
1. Early .. .. ..	June 10 to July 81	November to March.
2. Late .. .. ..	Aug. 15 to Sept. 15	March and April.
Kumpta .. .. ..	Aug. 15 to Sept. 15	March to May.
Dharwar-American .. .. ..	Aug. 15 to Sept. 15	February to April.
Westerns .. .. ..	Aug. 15 to Sept. 15	February to April.
Sind (local) .. .. ..	May to August ..	October to December.
Bengal .. .. ..	April to July ..	September to January.
Punjab-American .. .. ..	March to May ..	October to January.
Karunganni .. .. ..	October 15 to Dec. 15	April to July.
Cambodia .. .. ..	September to October ..	April to July.
Tinnevellys .. .. ..	October to November ..	March to August.
Burmah .. .. ..	May to June ..	(Early: September to October. (Late: January to February.)

\* The Matheo of Kathiawad, which is not a real Dhollera at all, though grown in the "Dhollera" area, is picked much earlier, from October to December.

(6) The *density of population*, 1921 census, was as follows :

Total India .. .. .. .. .. ..	177 per square mile
Madras .. .. .. .. .. ..	297 "
United Provinces .. .. .. .. .. ..	427 "
Punjab (excluding Delhi) .. .. .. .. .. ..	207 "
Bombay .. .. .. .. .. ..	157 "
Central Provinces and Berar .. .. .. .. .. ..	139 "
Burma .. .. .. .. .. ..	57 "
North-West Frontier Province .. .. .. .. .. ..	168 "
Bengal .. .. .. .. .. ..	608 "
Bihar and Orissa .. .. .. .. .. ..	409 "
Baroda State .. .. .. .. .. ..	262 "
Hyderabad State .. .. .. .. .. ..	151 "
Mysore State .. .. .. .. .. ..	203 "
Central India Agency .. .. .. .. .. ..	116 "
Rajputana Agency.. .. .. .. .. ..	76 "

(7) The *average cotton crop* for the last five years may be taken at about six thousand million lbs. of unginned cotton and about 1,928,000,000 lbs. of ginned cotton.

(8) The *average yield per acre* for the whole country for the last five years was 88.8 lbs. per acre, and for the last 10 years 83.6 lbs. per acre. The averages for the various areas for the last five years were as follows :

United Provinces .. .. .. .. .. ..	128 lbs. per acre
Madras .. .. .. .. .. ..	72 "
Bihar and Orissa .. .. .. .. .. ..	79 "
Bombay .. .. .. .. .. ..	85 "
Sind (for three seasons only) .. .. .. .. .. ..	104 "
Bengal .. .. .. .. .. ..	113 "
Punjab .. .. .. .. .. ..	114 "
Central Provinces and Berar .. .. .. .. .. ..	86 "
Burma .. .. .. .. .. ..	61 "
Assam .. .. .. .. .. ..	143 "
North-West Frontier Provinces .. .. .. .. .. ..	78 "
Ajmer Merwara .. .. .. .. .. ..	168 "
Central India .. .. .. .. .. ..	65 "
Rajputana .. .. .. .. .. ..	95 "
Hyderabad State .. .. .. .. .. ..	104 "
Mysore State .. .. .. .. .. ..	76 "
Baroda State .. .. .. .. .. ..	62 "

(9) *Average price of land.*

No useful purpose would be served by attempting to answer this question, as to do so would mean a review of the Tenancy Laws of the various provinces. Broadly speaking, it may be stated that land is not available for capitalist development except in very special cases on new canal schemes.

(10) *Cost of production and agricultural wages.*

It is not possible to give a general answer to this question. India is a densely populated and, from one point of view, a fully developed country agriculturally. It is not the absolute price of cotton which affects the Indian cotton area, but the relative price compared to other agricultural produce. Any statement of agricultural wages would be misleading, as except for cotton picking little paid labour is employed on the whole.

(11) *Means of transport.*

Adequate railway systems connect all the principal cotton-growing

areas with the ports. Some three-fourths of the cotton in India is handled in Bombay. The other important ports are :

Karachi, Sind and Punjab.

Madras ports, particularly Tuticorin (for Madras cottons, especially Tinnevelly).

Burma cotton is shipped from Rangoon.

Shipments of cotton from Calcutta are small.

(12) *The insect pests of cotton.*

1. The pink boll-worm (*Platyedra gossypiella*).
2. Spotted boll-worms (*Earias fabia*, *Earias insulana* and *Earias cuprioviridis*).
3. The cotton stem borer (*Sphenoptera gossyppii*).
4. The stem weevil (*Pempheres affinis*).
5. The cotton leaf roller (*Sylepta derogata*).
6. The red cotton bug (*Dysdercus cingulatus*).
7. The dusky cotton bug (*Oxycaremus lactus*).
8. The cotton leaf hopper (*Empoasca devastaters*).
9. The cotton aphis (*Aphis gossypii*).

(13) *Ginning machinery.*

Roller gins are used almost universally throughout India, both double roller and single roller. There are a few saw gins in the Dharwar District of Bombay, and a few have recently been established in the Punjab. The number of ginning factories coming under the Factories Act for the whole of India is 2,043. Some of these are ginning factories only, others are ginning and pressing factories. A very considerable number of small factories do not come under the Factories Act. Of the 2,043 factories reported, details of the number of gins have been furnished by 1,360 factories, the total number of gins in these 1,360 factories being 32,912.

(14) *Baling presses.*

The standard Indian bale is 400 lbs. gross, of about 9 cubic feet; 500-lb. export bales are pressed in Madras. The following statement shows the various types of bales in use :

						Bale size
(1)	Nasmith Wilson Press	..	..	49 in.	× 17 in.	× 18 in.
(2)	Leeds Press (Berry)	..	..	22½ in.	× 22½ in.	× 28 in.
(3)	Fawcett Preston Cyclone Press	..	..	31½ in.	× 27½ in.	× 17½ in.
(4)	Cummins Press	..	..	39 in.	× 19 in.	× 19 in.
(5)	Hadgart Press	..	..	400 lbs.	Vol. 10½ cu. ft.	
(6)	Octopus Press	..	..	500 lbs.	Vol. 9½ to 10½ cu. ft.	

(15) *Concessions* have been given by the Punjab Government for the growing of long-staple cotton in the new Canal Colonies. It is not possible to state whether such concessions are likely to be repeated in the future. These concessions consisted of grants of land on special favourable terms.

(16) There is no *Export Tax* on cotton. The Indian Cotton Cess (to provide funds for the Indian Central Cotton Committee and especially for additional cotton research) is levied on cotton exported and also on cotton used in Indian mills at the rate of 4 annas per bale at present.

There is a terminal tax of R.1 per bale on all cotton entering the city of Bombay, but this is not an export tax but a local municipal tax to provide for the development of the city and port.

(17) A statement of Exports from 1918-19 to 1922-23 is attached. These figures are for the fiscal year :

STATEMENT SHOWING THE EXPORTS OF INDIAN COTTON  
DURING THE FISCAL YEAR.  
(In bales of 400 lbs.)

Countries	1918-19	1919-20	1920-21	1921-22	1922-23
United Kingdom ..	77,825	149,088	96,006	85,784	191,632
Germany ..	—	48,608	201,370	284,741	262,590
Netherlands ..	—	15,120	11,816	5,365	9,615
Belgium ..	—	187,485	242,917	198,802	252,062
France ..	10,208	57,198	38,455	56,688	126,819
Spain ..	689	48,805	76,580	80,187	65,666
Italy ..	128,418	155,198	212,890	154,392	241,826
Austria-Hungary ..	—	8,809	84,149	88,477	42,582
Ceylon ..	8,254	2,811	8,886	2,710	5,186
Indo-China ..	10,147	8,618	9,072	29,540	19,897
China ..	15,131	90,227	191,788	485,445	497,297
Japan ..	788,300	1,657,815	989,014	1,760,265	1,621,004
U.S.A. ..	2,897	17,746	9,380	9,178	21,829
Others ..	4,256	12,281	8,008	8,242	5,270
Total ..	1,080,120	2,898,649	2,075,276	2,989,291	3,862,225

(18) *Description of fibre and method of dealing in cotton.*

The length of staple of the different kinds of Indian cottons range from  $\frac{1}{2}$  in. to  $1\frac{1}{2}$  in. For details, see the Indian Cotton Committee's report. Since the Indian Cotton Committee's report was issued an East India Cotton Association, Ltd., has been established in Bombay, which controls the Bombay cotton trade and for all practical purposes the futures market for India. Proper hedge contracts and delivery contracts are in force. Hedge contracts are subject to a "mutual allowance" clause. Arbitration standards have been established for all trade descriptions. There is a proper organization for arbitrations and appeals. The standards are for grade only and not for staple, but some of the contracts include staple clauses. For further particulars refer to the By-laws of the East India Cotton Association.

**IRAQ (formerly Mesopotamia).** (*Replies by the Director of Agriculture, Bagdad, Iraq.*)

(1) The area at present under cotton in Iraq is estimated at 10,000 acres.

(2) *Possible extension.* The total area that can be used for cotton cultivation when the contemplated irrigation projects are completed is 2,000,000 acres annually.

(3) *Variety of cotton.* The only cotton grown commercially is a long-stapled American variety, having a staple  $1\frac{1}{2}$  in. to  $1\frac{1}{4}$  in. and known commercially as Mesowhite. This is a variety of *Gossypium hirsutum*.

- (4) *Dates of planting* are March 10 to April 20.
- (5) *Dates of picking* are August 1 to November 30.
- (6) *Density of population* in cotton zones not known.
- (7) *Cotton production* of Mesowhite variety for the past three years is as follows :

	SEED COTTON.	RAW COTTON.
1921	100,000 lbs.	60 Bales
1922	460,000 "	800 "
1923	1,700,000 "	1,100 "
1924	5,600,000 " (estimated)	3,500 " (estimated)

(8) The *average yield* of lint cotton per acre is about 150 lbs., but the yield is steadily increasing.

(9) *Price of cotton land.* Cotton land can be rented from the Government. The average price of such land depends on a variety of factors.

(10) An estimate of the *cost of production* of cotton may be gathered from the fact that the Arab cultivator is quite content with 40 per cent. of a cotton crop which yields 600 lbs. seed cotton per acre, gins at 25 per cent. and sells at 625/- per ton.

*Agricultural wages* are generally paid in kind, but 1/- per day on an average for agricultural labour is considered reasonable.

(11) *Means of transport* of cotton to nearest seaport is by rail. The cost averages about  $\frac{1}{2}$ d. per lb. of raw cotton.

(12) The more common *insect pests* affecting cotton in Iraq are : (a) Spotted boll-worm (*Earias insulana*), (b) Jassids, (c) Aleurodes.

(13) System of *ginning machinery* in use is that of roller gins. Number of ginning factories : One central factory only at Bagdad.

(14) The *density to which bales* are pressed is about 25 lbs. per cubic foot. The average weight per bale is 400 lbs.

(15) *Government help.* The Government of Iraq is willing to support cotton growing by special concessions which are now under consideration.

(16) The *export tax* on cotton is 1 per cent. *ad valorem*.

(17) *Exports.* See para. 7. No cotton was exported previous to 1920. All cotton since 1920 has gone to Liverpool.

(18) *Commercial grading.* See para. 3. Practically the whole of the cotton grown at present in Iraq is bought, ginned and baled by the British Cotton Growing Association. They have no arrangement at present whereby the cotton can be graded accurately on a commercial basis before export.

#### MALTA. (*Replies by the Superintendent of Agriculture, Valletta, Malta.*)

(1) *Total area under cotton.* In 1922-23 (a dry year) the area under cotton amounted to only 855 acres. Cotton being wholly grown here as a dry-farmed crop, the area under cotton varies considerably from year to year according to the storage of moisture in the soil during the rainy season.

(2) *Possible extension.* Given good conditions of moisture in the soil, the area may be three or four times that stated above.

(3) *Varieties.* The varieties grown are the following : (a) Maltese

cotton, the ancient variety cultivated here since time immemorial. It belongs to the species *Gossypium herbaceum L.*; is very early and well productive; the fibre is of the purest white, but is short-stapled. (b) Levant cotton, sometimes called Gallipoli cotton, a form of *Gossypium hirsutum*, well productive, as early and as white as the preceding, but also short-stapled. (c) Nankin cotton (*Gossypium religiosum*) now only cultivated in very small quantities for household uses.

Other sorts, such as tree cotton, long-stapled Upland, etc., are only grown experimentally.

(4 and 5) *Planting and Picking.* Cotton is sown towards the close of April and is harvested in September–October.

(6) The *density of population* in our rural districts is very high, being at an average of 800 per square mile.

(7) *Average crop.* The production of seed cotton (in 1922–23) was estimated at 222,000 lbs., and the yield in lint was estimated at 77,094 lbs.

(8) *Yield per acre.* Very variable according to season, i.e., according to conditions of soil as above stated. In good rainy years the average is 176 lbs. per acre.

(9) *Price of land.* No land is devoted *specially* to cotton, this crop being cultivated in one of the usual courses of rotation with other crops. Land is very dear, good land, unirrigated, averaging £145 per acre, and is rented at an average of £5 8s. per acre. It is not often that agricultural land is on sale.

(10) *Cost of production.* The price of lint varies from 7d. to 1/- per lb. A "usage" of from 12 to 14 per cent. is deducted from the gross weight for moisture, impurities, etc.

*Agricultural wages* vary from 2,6 to 4/- per working day.

(11) *Means of transport.* Cotton is exported only as *lint*, packed in very large bags (not bales) of variable weight, and carted from the place of production to the quay.

(12) *Insects.* The only insect pest really injurious is *Aphis gossypii*, the cotton aphid.

(13) *Ginning.* Cotton is ginned by the farmers at their farms, by means of hand gins of old pattern.

(14) *Bales.* See No. 11.

(15) *Government help.* The Government should have specific details and more information before giving a definite answer.

(16) *No export taxes.*

(17) *Exports.* Maltese cotton is exported chiefly to the United Kingdom, Italy, Beyrouth and Greece. Minor quantities are also sent to Turkey, Germany, etc.

The exports during the last five years were as follows :

	..	..	..	..	..	..	..	520 cwt.
1918–19	..	..	..	..	..	..	..	520 "
1919–20	..	..	..	..	..	..	..	541 "
1920	..	..	..	..	..	..	..	1,080 "
1921	..	..	..	..	..	..	..	1,919 "
1922	..	..	..	..	..	..	..	4,060 "

A certain proportion is manufactured locally into ordinary cotton goods, but chiefly into sail cloth.

(18) See No. 3.

**NIGERIA.** (*Replies by the Deputy-Director of Agriculture.*)

- (1) *Area at present under cotton* is unknown.
- (2) Many millions of acres are available for *future extension*.
- (3) The approximate percentages of *different varieties* of cotton grown for export are as follows : *Gossypium hirsutum* (long-staple American Upland), 66 per cent.; *Gossypium Peruvianum* (indigenous cotton of West Africa), 33 per cent.
- (4) *Planting season* from June to September inclusive.
- (5) *Picking* from November to March inclusive.
- (6) Approximately 40 per square mile is the *density of population*.
- (7) *Average crop.* About 15,000 bales, equivalent to 20,683,000 lbs. of seed cotton and about 6,000,000 lbs. of lint.
- (8) *The yield of lint per acre* varies enormously, according to conditions from zero to 200 lbs. To state any figure as an average would be misleading.
- (9) *Land conditions.* Cotton production is in the hands of the indigenous population. It is unlikely that outside capital could be employed to advantage in cotton growing. Land could not be bought, but might be leased at a nominal figure.
- (10) *Cost of production.* It is estimated that the cost to the peasant producer is about 6d. per lb. of lint. Agricultural wages vary from 6d. to 1/- per day.
- (11) *Means of transport.* A railway runs from Zaria, the chief cotton producing centre, to Lagos the port, a distance of 600 miles. The cost of railage works out at about £4 per ton.
- (12) *Insect pests.* Cotton stainers and boll-worm.
- (13) *Saw gins.* There are at present six ginneries, all the property of the British Cotton Growing Association.
- (14) *Density of bales.* 80 cubic feet per ton. Weight of bales, 400 lbs. net and 411 lbs. gross. Presses in use are made by John Shaw & Sons, Salford, Manchester.
- (15) Probably no *Government financial help* would be given.
- (16) No *export taxes*.
- (17) *Exports of cotton lint from Nigeria* (in bales of 400 lbs.)

	1918	1919	1920	1921	1922
Long staple American .. ..	855	2,248	3,568	3,405	10,276
Indigenous West African .. ..	2,845	14,614	14,673	26,634	6,228
Total .. ..	3,700	16,862	18,241	32,039	16,504

(18) American Upland long-staple, 1  $\frac{3}{16}$  in.; indigenous West African cotton,  $\frac{7}{8}$  in. to 1 in. Cotton is graded by Government at official markets.

**NYASALAND.** (*Replies by the Director of Agriculture, Zomba, Nyasaland.*)

- (1) *Area under cultivation* (in the year 1922) :

European estates .. ..	..	..	..	..	26,545 acres
Native cultivation (estimated)	..	..	..	..	8,558 "
Total .. ..	..	..	..	..	30,098 "

(2) *Possible expansion of acreage.* The acreage can be very largely increased at elevations below 2,500 ft.; it should be possible to plant 5 per cent. of this area to cotton.

(3) *Kind of cotton grown.* The total area under cotton is planted with Nyasaland Upland.

(4) *Dates for planting.* From November, at higher elevations, to the end of February at lower elevations.

(5) *Dates for picking.* Picking commences from  $4\frac{1}{2}$  to 5 months after planting.

(6) *Density of population.* (a) Lower River Division.—Lower Shire District, 71 to the square mile; Chikwawa District, 20 to the square mile. (The population concentrates along the river bank and the density is actually much greater than is shown above.)

(b) Central Shire and Ncheu Division.—Central Shire District, 17 to the square mile; Ncheu District, 64 to the square mile. (The natives in the Ncheu District are fairly well scattered over the District.)

(c) Mlanje, Zomba and Upper Shire Division.—Mlanje District, 44 to the square mile. (South of Mlanje the rainfall is too heavy for cotton and cultivation of this crop is confined at present to the north of Mlanje Mountain.) Zomba District, 83 to the square mile. (Cotton is cultivated on the lower slopes of the highlands.) Upper Shire, 16 to the square mile. (This is suitable for cotton, but little development has taken place up to the present.)

(d) South Nyasa and Lake Shore Division.—South Nyasa, 33 to the square mile. Lake Shore: It is impossible to estimate the density of the population on the Lake Shore, but there are distinct possibilities for the production of cotton along the fringe of the Lake Shore and up-river valleys where elevations are suitable.

(7) *Average crop of seed cotton and lint.* Average for years 1918-22, 4,039,450 lbs. seed cotton; 1,212,000 lbs. lint.

(8) *Average yield of lint per acre.* The average for 10 years (1913-22) is 75 lbs. of lint per acre. This figure does not show the possibilities of Nyasaland as a cotton-producing country, as the low yield is largely due to ineffective control of the boll-worm. Yields in the different zones fluctuate according to the seasons. On the Lower River a second crop is frequently obtained in one season from the same plant.

(9) *Purchase or rental of land.* Freehold land is difficult to secure. Conditions on which leasehold may be obtained are set out in "Hints for Settlers," a copy of which may be had on application to the Empire Cotton Growing Corporation, London.

(10) (a) *Cost of production.* It is difficult to answer this question, and any company desirous of investing capital in cotton growing in this country could best obtain information on this subject by communication with the Department of Agriculture. In this connection it is significant that when the price of cotton dropped in 1920, there was a large reduction in the cotton acreage, both among European and native cotton growers, and with the subsequent rise in prices there has been a marked increase in acreage, amounting in the case of European estates to over 100 per cent.

(b) *Agricultural wages.* Labour brought down from up-country costs (inclusive of food) 7/- to 8/- per month of 24 working days.

Small initial charges for recruiting have to be added. Local labour is paid 5/- to 6/- per month, exclusive of food. Child labour is paid according to size.

(11) *Means and cost of transport.* Pressed cotton costs approximately 2/- per ton-mile to railhead by motor transport. Head load transport is about 25 per cent. less; it is slower and the produce is liable to damage in wet weather. On the Lower River cheap transport is employed at certain seasons of the year.

The railway rates for 2,000 lbs. of lint, Blantyre—Beira, is £8 4s. 5d. The distance from Blantyre to Beira is 349 miles, and from Port Herald to Beira, 236 miles.

(12) *Cotton pests.* The more serious pests are the red boll-worm (*Diparopsis castanea*), the Spiny boll-worm (*Earias biplaga* and *Earias insulana*), and the American boll-worm. Stainers, aphides, and Jassids, etc., are also found attacking cotton plants.

(13) *Ginning machinery.* (a) Both roller and saw gins are in use. (b) There are 15 ginning factories. In addition, a number of growers use hand saw gins on account of the high cost of transport and in order to avoid the loss of seed.

(14) *Baling of cotton.* (a) Density of bales, 28 cubic feet to the 400-lb. bale. (b) It is understood that the presses commonly used are made by John Shaw & Sons, Salford.

(15) *Concessions by Government.* Government does not guarantee prices or interest on capital; favourable terms may be secured by persons desiring to cultivate cotton on an extensive scale.

(16) A very small charge is made for "road and river dues."

(17) *Exports of cotton.*

		Weight lbs	Value £ s. d.	Exported to
1918-19	.. ..	2,634,069 36,765	153,887 0 0 2,141 0 0	United Kingdom Portuguese East Africa
			2,670,834	156,031 0 0
1919-20	.. ..	980,048	55,473 0 0	United Kingdom
1920-21	.. ..	913,718	86,482 16 0	United Kingdom
1921	.. .. ..	1,468,810 6,422	66,078 0 0 481 0 0	United Kingdom . India
			1,475,282	66,550 0 0
1922	.. ..	2,227,674	72,920 0 0	United Kingdom

(18) *Length of fibre and grading of cotton.* (a) 1  $\frac{1}{16}$  in. to 1  $\frac{3}{16}$  in. (b) There are no standards by which Nyasaland cotton can be graded accurately, as is the case in America, but each grower has his own No. 1 grade, which consists of clean, mature cotton; such grading is done by hand. Nyasaland No. 1 grade usually fetches between 100 and 200 points over American middling.

**QUEENSLAND.** (*Answers to questionnaire by the Department of Agriculture and Stock, Brisbane.*)

(1) *Acreage under cotton.* For 1923, 28,695 acres; for 1924, 90,000 acres.

(2) *Possible extension.* There is an area of 50,000,000 acres within what is known as the Cotton Growing Belt, but the whole of this area could never be put under cotton, as it includes the areas of Queensland's largest towns, and much of it is taken up with other agricultural pursuits. (See answer to Question 6.)

(3) *Kinds of cotton.* For the year ending 31st December, 1923, there were 7,735 bales of cotton sent from Queensland. This total was made up as follows :

	Grade	Percentage of Grades	Bales
" A "	B.M.F. . .	26·80	2,073
" B."	F.G.M. . .	41·78	3,217
" C."	G.M. . .	28·25	1,790
" D."	F.M., Midd	8·90	301
" E."	F.L.M., L M	.62	48
" F."	F.G.O., G O., O.	.087	3
Ratoon	..	3·40	267
Durango	..	—	36

The existing Queensland cotton is of mixed Upland type.

(4) *Planting time.* From the month of August to November, and early December.

(5) *Picking time.* April, May and June.

(6) *Labour conditions.* Within the Cotton Growing Belt there are large towns having large populations ; for example :

Brisbane	..	220,000	Roma ..	..	3,000
Gympie	..	12,000	Gayndah District	..	4,000
Maryborough	..	12,000	Kingaroy ..	..	1,200
Bundaberg	..	12,000	Kilkivan District	..	1,500
Gladstone	..	1,500	Nanango ..	..	1,600
Rockhampton	..	30,000	Mt. Morgan District	..	12,000
Ipswich	..	11,000	Allora ..	..	2,000
Toowoomba	..	25,000	Boonah ..	..	2,500
Warwick	..	6,000	Gatton District	..	20,000
Dalby	..	2,500	Toogoolawah District	..	2,500

(7) *Average crops.* The prospects of the cotton industry in Queensland have been increasing so rapidly that it is rather difficult to strike an average crop. The figures for the past 10 years are as follows :

Year	Acreage	Yield Seed Cotton	Value		
			lbs.	d.	£
1914	..	134	20,386	1·18	200
1915	..	72	12,238	2·537	128
1916	..	73	24,264	2·337	233
1917	..	133	118,229	3·58	1,764
1918	..	203	186,458	4·35	3,017
1919	..	78	37,288	5 $\frac{1}{2}$	558
1920	..	166	57,065	5 $\frac{1}{2}$	1,308
1921	..	1,967	940,125	5 $\frac{1}{2}$	21,544
1922	..	8,176	8,876,673	5 $\frac{1}{2}$	88,466
1923	..	28,695	11,794,406	5 $\frac{1}{2}$	264,917

(8) *Yield per acre.* The yield per acre varies with the soil, the season and local conditions, but over a series of years should go in the vicinity of 600 lbs. seed cotton per acre, but probably more. This is equivalent to 200 lbs. lint.

(9) *Price of land.* There are thousands of acres of available Crown lands suitable for cotton growing in Queensland.

(10) *Cost of production.* From estimates made of the cost of producing cotton in Queensland, it is found that it costs 2·68d. (approx.) to put 1 lb. of seed cotton on rail for delivery to the ginnery. The average wage paid to farm hands is £4 per week.

(11) *Means of transport.* The cotton-growing centres in the Main Cotton Belt are linked up by railway, and the railway has been the chief method of delivering cotton to a ginnery. With the probable establishment of small ginning factories throughout the Cotton Belt, a good deal of cotton will be carted into the gineries.

(12) *Insect pests* have achieved a certain amount of prominence during the past year, but most of the pests that attack cotton in Queensland do not confine their attention to cotton alone; they are more or less omnivorous. Last year, owing to the great drought and also to the fact that cotton, on account of its great drought resistance, was practically the only green crop left on the farm, it was attacked by a good number of these pests and a good deal of damage was done, but it is anticipated that in a normal year these pests will be distributed over other crops and over natural grasses and shrubs, and will not do the same amount of damage to cotton. The following may be classed as insects that have been affecting cotton in Queensland: Australian boll-worm (*Earias hugeli*), spotted peach moth (*Conogethes punctiferalis*), cut worms (*Agrotis radians*), maize grub (*Chloridea obsoleta*), cotton stainers (*Dysdercus spp.*), monolepta beetle.

(13) All ginneries now in Queensland have been established by the British-Australian Cotton Association. The following particulars are herewith supplied—all saw gins:

Ginnery	No of Gns	Rough Cost
Whinstanes	8 (complete)	25,000
Rockhampton	8 (complete)	25,000
Wowan	8 (complete)	25,000
Dalby	8 (practically complete)	25,000
Gladstone	8 (not yet finished)	25,000
Gayndah	4 (complete)	22,500

\* To be increased to 10 qms

Each gin is capable of turning out 500 lbs. (one bale) of clean cotton lint per hour, but owing to stoppages, etc., the average is only about 400 lbs. per hour.

It will thus be seen that there are 44 gins at the six gineries, which means :

44 gins by 8 hours .. .. .. = 352 bales per day  
352 bales by 500 lbs. .. .. .. = 176,000 lbs. of cotton lint per day

176,000 lbs. by 3 lbs. of seed cotton for 1 lb. of lint = 528,000 lbs. of seed cotton per day

Less 20 per cent. for stoppages .. .. .. = 528,000 lbs., less 105,600 lbs. which means that the six gineries should be able to treat, each working day of one shift of eight hours, 422,400 lbs. of seed cotton.

The cost of a ginnery is roughly estimated at £25,000, and includes land improvements (such as roadways, etc.), buildings, water service, electrical installation, scales, engine and saw gins.

(14) *Bales.* Bales of lint are pressed by hydraulic pressure, and when fully pressed weigh approximately 500 lbs.

(15) *Government guarantee* as issued.

(16) *No export taxes.*

(17) *Exports.* For this answer see No. 7. All cotton lint has been exported to England. Small trial shipments have been made to Japan this year and a certain quantity sold to a Sydney spinning mill.

(18) *Description of fibre.* A grader has been appointed and he is instructing a staff of cotton graders. A grader will be stationed at each ginnery, and all grading will be done by Government.

The average staple is  $1\frac{1}{8}$  in. for the mixed seed, but it is somewhat uneven in staple. Durango is  $1\frac{3}{16}$  in. to  $1\frac{5}{16}$  in.

As regards grades, over 90 per cent. of our cotton last season graded equal to middling American, the greater proportion being considerably higher.

#### NORTHERN RHODESIA. (*Replies by the Cotton Expert of the Agricultural Department.*)

(1) *Area under cotton.* Between 1,500 and 2,000 acres are planted this season.

(2) *Possibility of extension.* A very large area indeed could be profitably planted with cotton, beyond the powers of the present inhabitants, white or black, but limited at present by the distance from railway line. It is my opinion that most of the present maize lands (over 25,000 acres) of the white farmers would give better net returns than maize on the basis of American middling being 1.4d. per lb., Liverpool. There is still as much land again on the occupied farms all within easy reach of the railway. There are besides unoccupied farms, almost as suitable as those which are occupied, and just as near the railway.

(3) *Varieties of cotton planted.* Watts' Long Staple (imported from Barberton, Transvaal), 65 per cent.; Arizona (imported in 1921 from Arizona), 20 per cent.; Mixed Bancroft (imported from Rustenburg, Transvaal), 13 per cent.; Improved Bancroft, Nyasaland Upland, Abassi, 2 per cent.

N.B.—These quantities, of course, are very small to be called commercial quantities.

(4) *Planting time.* As far as is known at present the best time to plant is before the end of November, but this season the bulk was planted from 10th to 20th of December because of the exceptionally late rains.

(5) *Picking time.* The time of picking is from April to August. (This is all dry weather.)

(6) *Labour.* Where cotton is planted is very sparsely populated. Each farmer is from three to five miles from his nearest neighbour.

(7 and 8) *Average crop and yield.* No careful record has been kept. According to statistics in season 1920-21, 57 acres gave 2,835 lbs., an average yield of 49.73 lbs. of lint to the acre, and in season 1921-22 295 acres gave 31,823 lbs., an average yield of 107.87 lbs. of lint to the acre.

I know that in 1922 most of the growers only picked the first picking and left the rest, the bulk of the crop, on the ground (being under the impression that it was worthless) that the price they would realize in Liverpool would not pay for ginning, pressing, railage, freightage, etc.

(9) *Lease of land.* The following is the Permit of Occupation. The prices range from 5/- to 15/- per acre :

NORTHERN RHODESIA.—PERMIT OF OCCUPATION.

THE BRITISH SOUTH AFRICA COMPANY.

Land is granted under a Permit of Occupation covering a period of five years, which may be extended to 20 years.

As the consideration for the grant of the Permit of Occupation, the tenant shall pay an amount equal to 25 per cent. of the valuation placed upon the farm. This is payable in five annual instalments, the first instalment being due on the issue of the Permit of Occupation, and interest at 6 per cent. per annum on the unpaid balance of the consideration will be added to the instalments falling due on the first day of the second, third, fourth and fifth years.

The remaining 75 per cent. of the valuation represents the purchase price of the land.

A rent of 6 per cent. on the purchase price or unpaid balance of same is payable annually, in advance, as from the date of the Permit of Occupation.

The tenant may at any time during the first period of five years pay the purchase price or make payments on account. As the annual rent is payable only to the unpaid balance of the purchase price, the rent will cease to be charged when the purchase price has been paid, and will be proportionately reduced when payments are made on account.

If at the end of five years the farm has been surveyed and the occupation conditions fulfilled, the tenant on the payment of the purchase price will receive final title.

The tenant, instead of tendering the purchase price at the end of or during the term of five years, may continue to occupy the farm under the Permit of Occupation for a further period of 15 years. In this case the purchase price will be payable in 15 annual instalments, the first instalment being due on the first day of the sixth year. Interest at 6 per cent. per annum will continue to be payable on the unpaid balance of the purchase price.

On the termination of the further period of 15 years, the purchase price having been paid and the occupation conditions fulfilled, final title will be issued.

On the grant of final title being made, an annual quit rent of 1,- for every 50 acres becomes payable to the Company.

The cost of survey of the farm is included in the purchase price.

The conditions of occupation provide that the farm shall be continuously occupied during the period covered by the Permit of Occupation either by the tenant or by a substitute approved by the Company in writing, and terms are laid down as to the minimum acreage to be brought under cultivation, number of stock to be carried, value of buildings, etc.

The rights granted to the tenant under the Permit of Occupation may not be assigned or sublet or mortgaged without the consent of the Company in writing.

The Mineral Rights are reserved by the Company.

(10) The *cost of production* on the farm should be 3d. per lb. of lint. Agricultural wages (food supplied in the form of maize meal) are from 5 – to £2 10s. for a headboy. A few native tradesmen are paid higher wages.

(11) *Transportation.* Lint was transported from the ginnery by rail to Beira at a cost of 2/3 per lb. in the past.

(12) *Insect pests.* I can say very little about insect pests in North-West Rhodesia. I have seen boll-worm (the American or red boll-worm), the Spiny boll-worm, the cotton stainer, but it is too early to estimate the damage they do.

Cutworms and crickets have done some harm in the young crop, but the damage is not serious.

(13) *Ginneries.* One saw gin and a press will be installed at Pemba, a second and larger gin and press, of the same size and make, will be installed at Mazabuka before this season's crop is picked. .

(14) *Bale presses.* The presses are Hollins' Presses, as advised by the British Cotton Growing Association, which give a 300 lb. bale, said to be pressed to a density of 24 lbs. to the cubic foot.

(15) *Government help.* Nothing has been done of this description.

(16) There are no *export taxes* on cotton. Seed cannot be exported and will be used this year for planting, fertilizing and dairy feed.

(17) *Cotton exports.* Much of the cotton produce was used locally or in Southern Rhodesia for mattresses, cushions, etc. The rest was sent to Liverpool.

(18) *Description of fibre.* The British Cotton Growing Association's valuation on 16th November, 1923, of a shipment consisting of 102 bales belonging to various farmers ranged from 13d. to 16·5d.; the staple was from 1½ in. to 1¾ in. and most of it was described as being of good colour. These valuations were based on March Futures at 15d. per lb.

#### SOUTHERN RHODESIA. (*Replies by the Director of Agriculture, Salisbury, Rhodesia.*)

(1) *Area under cotton.* The acreage planted this season is estimated at approximately 3,500 acres.

(2) *Possible extension.* The areas which can be used for cotton growing are not sharply defined, and depend primarily on altitude with which climatic conditions are associated. Parts of the following districts are known to be suitable for cotton production: Hartley, Mazoe, Lomagundi, Darwin, Mrewa, Mtoko, Makoni, Umtali, Victoria, Selukwe. Cotton is also being tried this season in the following districts: Bulawayo, Bubi, Nyamandhlovu, Insiza, Gwelo and Ndanga.

(3) *Kinds of cotton.* The cotton being grown is the American Upland type. The variety is improved Bancroft. Egyptian, Sea Island and Caravonica have been tried, but the results were disappointing.

(4) *Planting time.* Cotton should be planted during the month of November.

(5) *Picking time.* Picking begins in May and continues until the end of June or early part of July.

(6) *Labour conditions.* The areas not being strictly delimited, the density of the population cannot be precisely indicated, but the following figures may serve as an indication :

				Population per square mile (European and Native)
Southern Rhodesia .. .. .. ..				3·7
Districts under (1) in Question 2 .. .. .. ..				from 3·2 to 16·7
Districts under (2) in Question 2 .. .. .. ..				from 3·4 to 30·7

(7) *Average crop.* Cotton has been grown mainly for experimental trials, and the crop has not hitherto been of commercial importance. The lack of ginning and marketing facilities has prevented farmers from growing cotton commercially. No ginning returns up to present date are available.

(8) (a) No average yields available.

(b) In suitable areas approximately 200 lbs. per acre of lint cotton.

(9) *Price of land.* Good cotton land can be purchased in suitable areas at about an average price of £1 per acre, with the exception of Mazoe Valley, where it is dearer. Tenant farming is not general in this Colony, but when practised the rent is usually on a share basis which is generally one-fourth of the gross proceeds.

(10) *Cost of production.* The cost of production varies, but in suitable areas would average £3 to £3 10s. per acre. At an average yield of 200 lbs. per acre, the cost per lb. would be approximately 4½d.

Farm foremen usually are paid about £15 per month, with quarters, with a percentage of profits.

Native wages vary from 10/- to 30/- per month, with food.

(11) *Means of transport.* The following are the revised railway rates per ton for cotton and cotton products in Southern Rhodesia :

Miles	Cotton Seed for Sowing or for Oil Factories	Seed Cotton for Ginning	Lint for Export
10	40d.	40d	40d.
50	127d	106d	106d
100	210d	175d	
200	360d	300d	
300	450d	375d	
600	720d	600d	
			Over 75 miles, 2d. per ton per mile

Through rates per ton : Salisbury—Beira, £3 2s. 4d

" —Delagoa Bay, £8 8s 6d.

" —Durban, £8 4s. 5d.

(12) The insect pests peculiar to cotton are : The American boll-worm (*Chloridea obsoleta*), the Spiny boll-worm (*Earias insulana*), the Sudan boll-worm (*Diparopsis castanea*), the large stainer (*Dysdercus superstitionis*), the dusky stainer (*Oxycarenus albidipennis*).

(13) *Ginneries.* Saw gins are to be used. One ginning factory, of four 70-saw gins and one double-box hydraulic press, is being established in Salisbury this year.

(14) *Bale presses.* The bales will be pressed to a density of 15 to 18 lbs. per cubic foot. The press used will be a double-box, revolving press, manufactured by the Continental Gin Company.

(15) *Government help.* It is doubtful if this Government would

support cotton growing through the means mentioned in (15) of the questionnaire.

(16) No *export tax* on cotton.

(17) No *export*, excepting a small parcel through Kynoch, Ltd., Durban. Destination not known.

(18) *Description of fibre.* Staple ranges from  $1\frac{1}{8}$  in. to  $1\frac{1}{16}$  in. No arrangements yet made for grading for export.

#### SIERRA LEONE. (*Replies from the Commissioner of Lands and Forests.*)

Very few of these questions are applicable to this country, since we have at present no cotton exports. Cotton is produced by the natives in fair quantity, but is used entirely for domestic purposes, clothing, etc. The Colonial Government is now making a strong effort to establish an industry and it is hoped that within the next few years Sierra Leone will become a cotton exporting country.

The crop being one of purely peasant cultivation, it is impossible to give any indication of the area under cultivation. It is not grown in commercial quantities in any one locality.

So far as is possible, I append answers to your questions :

(1) *Area under cotton.* Unknown.

(2) *Possible extension.* The most likely parts for the successful cultivation of the crop are in the northern and north-eastern part of the Protectorate, the Konno and Koinadugu districts.

(3) *Varieties grown.* Three varieties are grown, but no one in commercial quantities. The three varieties are distinguished under Mendi names, viz., Quande, Fandewa and Ndului.

The Government is now attempting to establish the cultivation of Allen's Long Staple cotton.

(4) *Planting time.* Generally planted by the natives in the months of April to June.

(5) *Picking time.* Generally picked from October to December.

(6) Concessions of land may be had in the Protectorate.

(7) *Cost of production.* Unknown. *Wages.* Labourers are paid at the rate of from 9d. to 1/- per day.

(8) *Transport.* A railway runs eastwards from the Port of Freetown to Pendembu. A few motor roads branch from the railway to the north and south, but these penetrate only a short distance from the railway.

(9) *Insects.* The cotton stainer has been observed frequently to do damage.

(10) *Description of cotton.* Varieties vary from 0·8 in. to 1·2 in. No grading has ever been done.

#### UNION OF SOUTH AFRICA. (*Replies from the Department of Agriculture.*)

(1) *Area under cotton.* It is estimated that the area under cotton in the Union of South Africa for the year 1922-23 was 15,000 acres.

(2) *Possible extension.* South Africa has a very large area suitable for the production of a good class American Upland cotton, and it is estimated that there is from 3 to 4 million acres of this class of land.

(3) *Kinds of cotton.* Practically all the cotton produced in South Africa is American Upland (*Gossypium hirsutum L.*), comprising about 99 per cent. of the total crop. A little Sea Island (*Gossypium barbadense L.*) and Pima (*Gossypium Peruvianum [cav.]*) cotton has been planted for experimental purposes, and comprises the remaining 1 per cent. of the total.

The American Upland varieties grown are as follows: Improved Bancroft, Zululand Hybrid, Griffin, Watts Long Staple, and to some extent Uganda and Meade.

(4) *Planting time.* The dates of planting cotton are from the 1st October to the 15th December, depending on the locality. It is generally considered that planting from the 1st October to the 15th November gives the largest crop of seed cotton per acre.

(5) *Picking time.* Picking usually starts from April and extends into August, and in some years even into September.

(6) *Labour.* The density of population in some of the different zones where cotton is grown in commercial quantities is given by Mr. W. B. Wilson, formerly tobacco and cotton expert on the staff of the Tobacco and Cotton Division, as follows :

District	Square miles	Natives.	Europeans
Barberton	4,600	88,867	8,246
Rustenburg	9,000	46,589	15,564
Zoutpansberg	10,000	188,000	2,000
Waterberg	15,000	68,376	7,152
Marico	8,651	18,000	7,520
Zululand	10,000	220,000	Mixed population
Ngotshe	1,400	28,962	500

Mr. Wilson states that "these figures tend to show that there is an enormous area that, from the point of view of soil and climate, is believed to be suitable for cotton growing, and at many points within these areas the growing of cotton has been proved; but only by pushing development work and eliminating barren spots from the fertile ones can the real possibilities of these areas be determined."

(7) *Average crop.* The cotton industry is developing so rapidly in the Union of South Africa that it is not possible to give the *average* crop of seed cotton that is ginned in this country. For example, the 1921-22 crop gave approximately 3,000,000 lbs. of seed cotton, and 1922-23 over 7,000,000 lbs., an increase of over 100 per cent. on the previous year's crop. The actual amount of lint produced is as follows :

1921-22 .. 1,096,182 lbs      1922-23 .. 2,400,000 lbs

(8) The *average yield*, in lbs., of lint per acre varies considerably according to climatic conditions, but in a normal year a yield of 200 lbs. of lint per acre can be expected from the country as a whole. Larger average yields are generally reported from the Barberton District, and in parts of Natal and Zululand.

(9) *Average price of land.* Suitable cotton land can either be bought or rented in this country. The price and rent of these lands vary according to the locality they are situated in, and to the distance from the rail. The average price that cotton lands can be purchased for would be from £1 to £1 10s. per acre. Land is generally purchased

in South Africa, and only a small percentage of farms are rented; the rent would be from 2/6 to 5/- per acre per annum.

(10) The *cost of production* of cotton varies to some extent in different areas, and is proportionate to the season experienced; the more favourable climatic conditions, the larger the yield and hence a lower cost of production. The average cost of producing an acre of cotton throughout the cotton belt of South Africa is from £3 to £4, and taking an average crop of 600 lbs. seed cotton per acre at the higher rate of production of £4 per acre, it works out at 4·8d. per lb. of lint.

The agricultural *wages* paid in the cotton areas are as follows :

Adult natives, from 80s. to £8 per month

Youths, from 10s. to £1 per month

Women, from 15s. to £1 10s. per month

All agricultural labourers are fed, the food consisting chiefly of maize meal.

(11) *Means of transport.* Cotton is generally transported from the farms to the railway station or siding by ox-waggon. South Africa has no inland water transport, so all cotton is taken to the coast ports by the railways, owned and staffed by the Government.

The cost of railway freight on cotton is very reasonable, and is not a very heavy item in the cost of marketing, as cotton, raw or ginned, consigned to the coast for export oversea, beyond South or South-West Africa, is 0·8d. per ton per mile up to 345 miles; over this mileage it travels at Tariff 7, which is one of the cheapest rates on the railways.

(12) *Insect pests.* South Africa is unusually free from cotton insect pests, as the Mexican boll-weevil and the pink boll-worm, which are the worst pests known to cotton, are unknown in these parts. We are troubled some years by other boll-worms, as the American, Spiny and Sudan, also Jassid, stainiers and aphid in certain areas. Very strict laws are in force governing the importation of seed.

(13) *Ginneries.* Practically all the cotton grown in South Africa is ginned on the saw gin, excepting a small quantity of Pima and Sea Island types, which are put through a roller gin. There are 14 cotton gins in operation in the Union, although many of these are very small, comprising in most cases only one gin. New up-to-date ginneries are being erected all over the cotton belt, most of them being automatic and pneumatic.

(14) *Baling presses.* There is a regulation in force calling for all new gimmers to turn out a bale weighing approximately 500 lbs. with a density of approximately 30 lbs. per cubic foot. Both English and American presses are in use.

(15) *Government assistance.* The Government of the Union of South Africa is fostering the cotton industry through the medium of the Tobacco and Cotton Division. This Division is composed of a chief and a staff of experts who assist cotton growers by giving advice as to cultural methods, etc. An entomologist has also been detailed to do special work on cotton insects.

The Government is also building a railway through one of the most promising cotton lands in the Union, in order to open up these lands for cotton growing. The Government does not guarantee prices nor the principal or interest on debenture issue.

(16) *Export tax.* There is a special levy of 1/- per 100 lbs. of lint

exported; this levy only to be used for the promotion and furthering the interests of the cotton industry.

(17) The exports of cotton from the Union of South Africa for the last five years are as follows :

1918-19	..	..	..	764,584 lb., lint (approximately)
1919-20	..	..	..	1,094,763 "
1920-21	..	..	..	1,169,298 "
1921-22	..	..	..	1,096,182 "
1922-23	..	..	..	2,400,000 "

Cottons from South Africa are exported to Great Britain, Belgium and France.

(18) Cotton can be graded accurately on a commercial basis, as this work is done by official graders appointed by the Government.

The following comparison of grading, drawn up by Mr. T. G. Hesse of this Division, gives the length of fibre and grade for all cotton exported for the years 1920-21, 1921-22 and 1922-23 :

Comparison of Grading	1922-23		1921-22		1920-21	
	Bales	%	Bales	%	Bales	%
<b>STAPLE :</b>						
1½ in. and above .. .. ..	213	4	—	—	—	—
1½ in. .. .. ..	1,092	20½	6	1	70	½
1½ in. .. .. ..	2,270	48½	447	26	604	25
1½ in. .. .. ..	742	14	228	13	680	29
1 in. .. .. ..	916	17½	1,014	59	970	41
½ in. and below .. .. ..	26	½	24	1½	39	1½
	5,259	100	1,719	100	2,363	100
<b>GRADES :</b>						
Barely middling fair .. g.c. 702	13½	32	3	143	6	
Fully good middling .. .. 1,391	26½	553	32½	631	26½	
Good middling .. .. 1,887	25½	732	42½	860	36½	
Fully middling .. .. 359	6½	184	11	238	10	
Middling .. .. 217	4	38	2	11½	5	
Fully low middling and below .. .. 184	3½	2	—	34	1½	
Good colour .. .. 4,190	79½	1,563	91	2,015	83½	
Off colour .. .. 1,069	20½	156	9	348	14½	
	5,259	100	1,719	100	2,363	100

### SUDAN. (*Replies from the Department of Agriculture.*)

#### (1) Area under cotton.

- (a) Gezira, 20,000 feddans (1 feddan equals 1 acre, approx.).
- (b) Tokar, 40,000 feddans (varies with the volume of the Baraka flood).
- (c) Kassala, 10,000 feddans (roughly approximate).
- (d) Government pumping schemes (Berber and Dongola) 3,300 feddans.
- (e) Private estates (Khartoum northwards), 6,000 feddans.
- (f) Rainland cotton, 8,000 feddans (roughly).

#### (2) Possible extension. Gezira, 100,000 feddans (in the near future). Kassala, 100,000 feddans. Rainland, almost unlimited in the far south.

(3) *Varieties grown.* Sakellarides (Egyptian type), 80 per cent. American (long-staple American), 20 per cent.

(4) *Time of planting.* (a) For Sakellarides: In the Gezira, 15th July; at Tokar and Kassala, August and early September; on private estates north of Khartoum, May-July. (b) For American: On the Government pumping schemes, July; at Zeidab, May; on rainland in the north when the rains are assured, end of July and August; in the far south (considerably earlier), June.

(5) *Time of picking.* November-December with early-sown cotton; January-May with late-sown.

(6) *Labour.* A fair cultivating population in the Gezira, Tokar, Kassala and north of Khartoum. On rainland, sparse.

(7) *Average crop.* 100,000 kantars (315 rots) equal to 31,500,000 lbs. (roughly) seed cotton or 10,000,000 lbs. lint (roughly). Approximate average for the last five years. The annual output varies with the volume of the Baraka flood at Tokar. In the 1923-24 season with a good flood at Tokar the total output from the Sudan is estimated at 180,000 kantars.

(8) *Average yield.* In the Gezira, 400 lbs. per acre; at Tokar, 170 lbs.; at Kassala, 170 lbs.; on Government pumping schemes, 375 lbs. (American); on rainland, 120 lbs. (but varies).

(9) *Price of land.* No answer.

(10) *Agricultural wages.* All cotton is cultivated on the share system with native cultivators. Agricultural wages in the north vary from 5 P.T. to 7 P.T. per diem (1 P.T. equals 2½d.); in the south, 3½ P.T. to 5 P.T.

(11) *Means of transport.* From the Gezira by railway to Port Sudan. From Berber and Dongola (Government pumping scheme) ditto.

From Kassala by railway (approaching completion) to Port Sudan.

From the far south by steamer to Khartoum and railway to Port Sudan.

(12) *Insect pests.* Thrips, pink boll-worm, Egyptian boll-worm, flea beetle, locusts.

(13) *Ginneries.* Roller gins; four ginning factories.

(14) *Density of bales.* 80-90 cubic feet to the ton; weight of bales, (a) 400 to 420 lbs., (b) 600 to 620 lbs. Hydraulic presses.

(15) No answer.

(16) Very small *export tax.*

(17) Practically the whole grown is *exported*; almost entirely to Great Britain.

(18) *Description of fibre.* American, 1½ to 1¾; Sakellarides, 1½ to 1¾.

No arrangements whereby cotton can be graded accurately.

At Tokar and Kassala the cotton is graded by Government classifiers prior to local auction and ginning.

The Gezira crop is graded prior to ginning by the Sudan Plantations Syndicate.

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**SWAZILAND.** (*Replies from the Government Secretary, Mbabane, Swaziland.*)

(1) *Total area under cotton.* Approximately 2,500 acres.

(2) *Possible extension.* From 100,000 to 200,000 acres.

(3) *Varieties.* Only American Upland varieties have been grown in commercial quantities; Griffin, Bancroft and Zululand Hybrid.

(4) *Planting time.* October, November and December.

(5) *Picking time.* April to July.

(6) *Labour.* The European population is very sparse. The area of the whole territory is 6,678 square miles, whilst the total population at the census in 1921 was :

European .. . 2,205 Natives .. .. 110,746

(7) *Average crop.* There is only one ginnery in the country, which was established last year. At this ginnery last year 144,000 lbs. of seed cotton were ginned, yielding 48,000 lbs. of lint. All the cotton grown in the country is not, however, sent to this ginnery, large quantities are sent to Durban and Pretoria to be ginned.

(8) *Average yield.* The *average yield per acre* so far has been approximately 150 lbs. lint cotton. There is no doubt this can be increased by 50 to 75 per cent. when more knowledge is gained of growing the crop and of seed selection, and when methods of combating pests are discovered. Nearly all the cotton so far has been grown on virgin soil, or at least on soil that has not been submitted to any rotation of crops or fertilizing.

(9) *Price of land.* Cotton land can be purchased in Swaziland at an average price of £1 to £4 per acre. The price of land at present is very variable, depending to a great extent on what routes railways of the future are expected to take and on whether irrigation could be carried out. There are areas that can be taken up on shares of the crops with the owner, but at present there is no other form of renting land.

(10) *Cost of production.* 6d. to 8d. per lb. This will appear high, but this, to a great extent, is due to the great distance from the rail terminus, which makes the cost of implements, fertilizers, etc., high.

With the cultivation and the planting of larger areas of cotton, this figure will be much reduced. Wages range from 17/- to 30/- a month, with food. This, of course, applies to native labour. During the picking season the average wage paid to pickers is 1/- per 100 lbs. seed cotton.

(ii) *Means of transport.* Ox, mule and donkey wagons convey the cotton to rail head, which is about 80 to 100 miles distant. The cost is approximately 5/- per 100 lbs. to the coast.

(12) Insects. Jassids, aphids, Sudan boll-worm.

(13) *Ginnery*. There is only one ginnery in Swaziland which has one saw gin of 60 x 12 in. saws. A large amount of the cotton is sent to Durban to be ginned.

(14) *Bales.* According to Government regulations, which will shortly be published, bales must be pressed to a density of 30 lbs. per cubic foot; size of bales, 54 in. by 27 in. by 20 in., weight approximately 500 lbs. There are no presses in the country and all lint is sent to Durban or Pretoria for pressing.

(15) No *Government help*.

(16) No *Export duty*.

(17) *Exports.*

(18) *Description of fibre.* The cotton is all graded by the official graders of the Union of South Africa.

1923 Crop. 96·5 per cent. of total crop was graded as follows :  
 F G M            G M            B M F

Of this, 71 per cent. was F G M; 87 per cent. was 1 $\frac{1}{2}$  in. or over.

**UGANDA (Kampala).** (*Replies sent by the Director of Agriculture, Kampala.*)

(1) *Area under cotton.* 418,600 acres were planted in 1923.

(2) *Possible extension.* Up to 2,000,000 acres.

(3) *Kinds of cotton.* All Uganda commercial cotton is derived from the original long-staple Upland seed imported in 1909-10, and of which two kinds only—Allen and Sunflower—were retained, and by selection work have become established as Uganda cotton. Later introductions of long-stapled Upland cotton have been made from time to time, and one of them from Nyasaland has proved very promising. Others are still undergoing trial.

(4) *Planting time.* May to August.

(5) *Picking time.* November to February.

(6) *Labour conditions.* The Protectorate is divided into four provinces—Eastern, Buganda, Northern and Western. Each province is divided into districts, as under, and the population density is given against each. Nearly two-thirds of the total cotton production is in the Eastern Province and nearly one-third in Buganda Province.

							Density of Population per sq. mile
Eastern Province :							
Teso District ..	..	..	..	..	..	..	67·1
Busoga "	..	..	..	..	..	..	21·0
Lango "	..	..	..	..	..	..	37·2
Budama "	..	..	..	..	..	..	189·5
Bugweri "	..	..	..	..	..	..	106·2
Bugisu "	..	..	..	..	..	..	
Buganda Province :							
Mengo District ..	..	..	..	..	..	..	57·1
Entebbe "	..	..	..	..	..	..	23·3
Masaka "	..	..	..	..	..	..	32·4
Mubende "	..	..	..	..	..	..	25·9
Northern Province :							
Bunyoro District ..	..	..	..	..	..	..	17·1
Gulu "	..	..	..	..	..	..	14·7
Chua "	..	..	..	..	..	..	10·7
Western "	..	..	..	..	..	..	89·5

(7) The *average crop* taken over the last four years represents 95,000,000 lbs. of seed cotton and this is all ginned in the country. Lint from above, approximately 27,000,000 lbs., or 30 per cent.\*

(8) *Average yield.* (a) Approximately 100 lbs. (b) Eastern Province, 95-105 lbs.; Buganda Province, 110-125 lbs.; Northern Province, 90 lbs.

(9) *Price of land.* No freehold is now given in land sales. Agricultural Crown land of average quality could be rented from Government at low rates—say 80-100 cents (100 cents equals 1/-) per acre per annum, but in the Eastern Province the areas available are limited by the needs

\* H.M. Trade Commissioner in East Africa estimated the total quantity at 110,000 bales, but he now finds that a considerably larger number of bales will result from the 1923 planting.—(A.S.P.).

BRITISH WEST INDIES. (*Replies received from* t.)

QUESTIONNAIRE.	VIRGIN ISLANDS.	MONTSERRAT.	GRENADE.
1. Total area under cotton.	1928, 25 acres, average during past 17 years 250 acres.	Approximate 3,000 acres.	Approximate 1,000 acres.
2. Possible extension.	5,000 acres.	Approximate 2,000 acres.	Approximate another 6,000 acres.
3. Varieties.	Sea Island only.	Superfine Sea Island only.	Principally "Marie Galante."
4. Planting.	May, June and July.	March to April.	About May.
5. Picking.	November, December and January.	July to October.	About January April.
6. Density of population.	Population 5,000. Area 56 square miles.	Population 12,000. Area 32 square miles.	358·7 per square mile.
7. Average crop.	Average 26,341 lbs. lint.	450,000 lbs. lint.	234,464 lbs. lint.
8. Yield of lint per acre.	100 lbs. per acre by peasants. 180 lbs. per acre by large proprietors.	150 lbs. per acre.	477·64 lbs. per acre.
9. Price of land.	Price \$10·00 per acre. Rent \$5·00 per acre.	\$100 per acre.	Price £10–30 per acre. Rent £1–2 per acre p.a.
10. Wages cost of production.	50 cents. per day for men. 30 cents. per day for women.	Fluctuates according to price realized for lint.	
11. Means of transport.	By sailing boats to St. Thomas at \$1·00 per bale of 450 lbs. lint.	Oxen and mule waggons.	Water borne or motor lorries, 2s. to 3s. per bale of 800–1000 lbs.
12. Insect pests.	Cotton Worm, Cotton Aphis, Cotton Stainer, Pink Boll Worm, Leaf Blister Mite.	Pink Boll Worm, Cotton Leaf Worm, Cotton Stainer, Leaf Blister Mite.	Cotton Stainers, Cotton Ear Worm, White Scale.
13. Ginning.	1. Government gin, 9 h.p. oil engine. 2. Roller gins, Asa Lees and Platts. 1. Private gin, 9 h.p. engine, Platt's roller gin.	Asa Lees and Platts roller gins, 2 factories.	Saw gins principally, about 6 ginning factories.
14. Bales.	250 lbs. 4 ft. x 2 ft. x 2 ft. 2 Presses (Squire Ashton Ltd., Baling Press).	Hydraulic and hand press 20 lbs. per cubic ft. Squire Ashton American screw.	
15. Government help.	Government purchases crop from peasants distributes free seed and gives instructions on cultivation, etc., at Government Experiment Station.	None.	
16. Export taxes.	2 cents. per lb. lint.	Sliding scale according to selling price.	Export tax of 11d. per cwt.
17. Exports of lint.	22,750 lbs. in 1915 to U.K. 14,958 lbs. in 1916 to U.K. 10,408 lbs. in 1917 to U.K. 23,832 lbs. in 1918 to U.K. 28,425 lbs. in 1919 to U.K. No production in 1920 to U.K. 49,628 lbs. in 1921 to U.K. 7,672 lbs. in 1922 to U.K.	1917-1918.—400,855 lbs. 1918-1919.—488,222 lbs. 1919-1920.—548,884 lbs. 1920-1921.—595,083 lbs. 1921-1922.—367,788 lbs.	1916.—2,157 cwts. 1919.—2,764 " " 1920.—8,848 " " 1921.—2,985 " " 1922.—2,272 " " alto to U.K.
18. Staple and grading.	50 mm. average lint length.	51 mm. average lint length. No arrangements for grading.	Attempts being made to improve Grenada cotton by Imperial College of Tropical Agriculture.

(the various Departments of Agriculture and Experiment Stations.)

ST. LUCIA.	ST. VINCENT.	BARBADOS.
About 15 acres.	1,715.	2,167 acres.
8,000 - 10,000 acres.	6,000 acres.	3,190 acres. Planters prefer sugar to cotton as owing to pests cotton entails more work.
Sea Island.	Sea Island and "Marie Galante."	See Island only.
July, August and September.	May - July.	Varies between July and August.
December, January and February.	Sea Island : Aug. Feb. "Marie Galante"; Jan. July.	Varies December.
Laborie 209. Vieux Fort 227. Gros Islet 118. Choueul 497. Micooud 94.	Population : 16,000.	Population 136,812.
12,042 lbs. seed cotton or 3,265 lbs. lint.	Sea Island : 334,205 lbs. lint. "Marie Galante" : 49,078 lbs. lint. 95-160 lbs. per acre.	180,257 lbs. lint.
210-6 lbs. per acre.	Good cotton land can seldom be bought and is seldom or never rented.	Average 108 lbs. per acre. Last season 144 lbs. per acre.
£8-10 for land suitable for cotton.	Cost of Production : Sea Island 9d. per lb. of lint. Men 1s. 2d. 1s. 6d. per day. Women 1d. per day.	Almost impossible to buy land as it is hardly ever sold.
Men 1s. 2d. 1s. 6d. per day. Women 1d. per day.	Motors and sailing coasting vessels.	Cost of Production 10d. per lb. of lint including all expenses f.o.b. Mostly women engaged on cotton cultivation about £s. per day.
Donkey or horse drawn carts. Cost : 1d. 2d. per mile per 100 lbs.	Cotton Stainers, White Scale, Cotton Worm, Lent Blister Mite, Pink Boll Worm, Black Scale and Nazara viridula.	Railways, horse or mule, trucks and carts.
Cotton Worm, Cotton Stainer, Leaf Blister Mite (no serious infestation during recent years).	Sea Island on roller gins. "Marie Galante" on saw gins. 2 large and 4 small ginning factories.	The Cotton Worm, Lesser Cotton Worm, Corn Ear Worm, Pink Boll Worm, Cut Worm, Cotton Aphid, White Scale, Red Maggot, Leaf Blister, Mite, and Red Spider.
1 Ginning factory equipped with roller gins.	Previously 360 lbs. and 3 ft. x 7 ft. In future 320 lbs. and 3 ft. x 3½ ft. x 2 ft.	Roller gins two factories.
200 lbs.	—	Density 14-17 lbs. per cubic foot. Weight 500-600 lbs. Presses by Tangyes Ltd. None.
None.	—	None.
None.	Sea Island white 6s. per cwt. Sea Island stained 1s. 4d. per cwt. "Marie Galante" white 5s. per cwt. "Marie Galante" stained 1s. per cwt.	—
1919.—9,837 lbs. 1920.—4,045 "	Sea Island. "Marie Galante." 1919.—350,767. ... ... 35,913. 1919.—410,277. ... ... 35,750. 1920.—475,650. ... ... 79,687. 1921.—509,598. ... ... 39,582. 1922.—328,599. ... ... 26,840.	1918 Raw Cotton 148,868 lbs. to Great Britain. " Linters ... 10,088 " French W. Indies. 1919 Raw Cotton 114,444 " Great Britain. " Linters ... 2,000 " Trinidad. " " ... 19,908 " French W. Indies. 1920 Raw Cotton 21,517 " U.K. " Linters ... 10,907 " U.K. " " ... 674 " Trinidad. " " ... 4,800 " French W. Indies. 1921 Lint ... 102,682 " U.K. " " ... 65,824 " U.K. " " ... 518 " Trinidad. " " ... 4,397 " U.S. America. " " ... 1,140 " French W. Indies. " Linters ... 800 " U.K. " " ... 1,161 " French W. Indies. 1922 Lint ... 106,588 " U.K. " " ... 96,489 " U.S.A. " " ... 1,196 " French W. Indies. " Linters ... 17,463 " U.K. " " ... 9,293 " French W. Indies.
Not obtainable. No arrangement for grading on commercial lines.	Sea Island : Maximum length 60 mm. Average length 55 mm. "Marie Galante" : Maximum 48 mm. Planters do own grading.	15" to 24" Nearly all cotton sent to England and graded by Messrs. Wolstenholme and Holland.

of the native tribes. In Busoga District, areas might be found for cotton-growing projects, but they would probably be thinly populated and labour problems would be acute. In Buganda Province the bulk of the land is the freehold property of the natives, and arrangements to lease would have to be made with them and rents asked would be much higher.

(10) *Cost of production and agricultural wages.* (a) Cotton growing in Uganda is purely a native peasant industry, and thus no figures of costs can be computed. (b) 12/- per month are average wages.

(11) *Means of transport.* Example 1 : Eastern Province, Teso District. From Bugondo or Lalli, situated on Lake Kioga, to Namasagali by steamer ; from the latter to Jinja by rail ; from Jinja to Kisumu by steamer ; from Kisumu to *Kilindini* (seaport) by rail (Uganda Railway). Cost, Shs. 4'80 per 100 lbs. for cotton pressed to 25 lbs. per cubic foot.

Example 2 : Eastern Province, Bugwere District. From Mbale by road (motor-van) to Mjanji on Lake Victoria ; thence Kisumu by steamer ; thence rail to *Kilindini*. Cost, Shs. 3/50 per 100 lbs. Mbale to Mjanji (62 miles). Mjanji to *Kilindini*, Shs. 3/20 per 100 lbs. pressed to 25 lbs. per cubic foot.

Example 3 : Buganda Province, Mengo District. *Bombo* (22 miles north of Kampala) by Government loco tractor to Kampala at 70 cents per 100 lbs. ; thence by rail to Lake Port, steamer to Kisumu and rail to *Kilindini* at Shs. 3 72 per 100 lbs. pressed to 25 lbs. per cubic foot.

(12) *Insect pests* are fairly numerous, but in the aggregate cause relatively small damage. They are : (a) boll-worm (*Earias insulana*, Boisd.) ; (b) greenfly (*Aphis gossypii*, Glover) ; (c) stainlers (*Dysdercus nigrofasciatus*, Stal and *D. pretiosus*, Dist.) (*Oxycarenus gossypinus* et *O. hyalipennis*) ; (d) White ants and cutworms are responsible for occasional damage.

(13) *Ginneries.* (a) The majority of ginning factories (about 90 per cent.) are equipped with roller gins, but saw gins are also used in others. Several factories have both roller and saw ; (b) 130.

(14) *Bale presses.* (a) The average is 25 lbs. and usual weight is 400 lbs. ; (b) Chiefly Shaw's.

(15) *Government help.* The Government is keenly interested in fostering the cotton industry along the existing lines of development, but it is not considered likely that cotton growing by companies or syndicates in Uganda would meet with much success.

(16) *Export tax.* A tax of 6 cents of 1/- per lb. is imposed on all cotton lint exported from Uganda.

(17) *Exports of cotton.*

1919	..	..	..	..	..	..	14,324,576	lbs. of lint
1920	..	..	..	..	..	..	20,874,672	"
1921	..	..	..	..	..	..	32,546,804	"
1922	..	..	..	..	..	..	19,815,968	"
1923 (to end of October only)	..	..	..	..	..	..	38,446,000	"

Mainly England and India. The latter, in 1920, took 6,618,103 lbs. ; in 1921, 19,120,790 lbs. ; in 1922, 17,919,300 lbs.

(18) *Description of fibre.* (a)  $1\frac{3}{16}$  to  $1\frac{1}{4}$ . (b) No. Cotton is sorted into two grades by the growers prior to sale, and ginners subsequently grade according to their own ideas.

## Cotton Growing within the British Empire

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*Paper by L. G. KILBY, Secretary of the Empire Cotton Growing Corporation, London, originally intended for the Vienna Congress.*

TWO years ago a paper was presented under this title to the Congress then meeting at Stockholm. An account was then given of the steps that had led to the formation of the Empire Cotton Growing Corporation, a body depending for its resources alike upon the British Government and the spinners of Great Britain. A short summary was given of the Corporation's organization, and the general lines upon which work would be undertaken were foreshadowed.

It is intended in the present paper to give some indications of the conclusions which the Corporation have so far reached as to the general means whereby their object will best be attained, the action taken by them as the result of those conclusions, and finally, a brief review of the present position and future prospects of the cotton-growing industry in the several Dominions and Dependencies of the British Empire.

The problems of cotton growing all fall into one of two categories, being those either of farming in its widest sense, or of bringing the crop to market. Taking the latter category first, it is in the matters of transport and marketing that the Home and Local Governments can give invaluable assistance in developing new cotton lands. Transport is of primary importance, and if the supply of cotton is to develop at all rapidly it is to be hoped that the Governments of all potential cotton-growing countries will not adopt too cautious a policy in this respect, but will embark on a scheme for improving communications by rail, road, or water, wherever it seems reasonable to conclude that they will prove remunerative propositions ultimately if not immediately. The extension of cotton-growing areas without the previous, or simultaneous, provision of an efficient means of bringing the crop out of the country, is not merely extremely difficult, but can lead to no substantial or permanent results, whereas the agricultural development of a country proceeds apace when once a railway has been laid and feeder roads constructed.

In most parts of the British Empire, and particularly in tropical Africa, there is need of more and better communications—railways, bridges, roads and water transport. The method of head portage, still the only form of transport possible in many parts, is obviously wasteful in that a man is of far greater economic value as an agricultural labourer producing crops than when acting as a beast of burden. Nor can this matter of the provision of new means of transport be left mainly to private enterprise. A new railway, for example, will open up new country, but cannot become a paying proposition until the country through which it passes has been cleared and cultivated or its mineral wealth developed—a period of some few years at least. It may be accepted as a general principle therefore that it is from the Imperial Treasury, or from those of the local Governments, that funds must as a rule be provided for the

construction of railways, roads, irrigation and harbour works. A few instances may perhaps be given of the readiness with which the British and Overseas Governments have accepted their responsibility in this respect in their cotton-growing areas:—

The Imperial Government have lately sanctioned a grant of assistance towards the extension of the Uganda Railway to a point near Jinja from Nakuru, a station on the main line between Mombasa and Kisumu, which is directly intended to develop the cotton-growing industry of Uganda and to open up the important country of North Kavirondo, where cotton should be grown in large amount. It may be mentioned parenthetically that the case of Uganda affords an instance of the full development of a country awaiting the provision of adequate transport. As regards the Tanganyika Territory, proposals are under consideration for the construction of a railway from Tabora to the important cotton-growing district of Mwanza and for the reconditioning and extension of the Lindi Tramway which taps an important cotton-growing area. The Imperial Government have guaranteed the loans required by the Sudan Government to complete the great dam on the Blue Nile and to construct the Kassala Railway; it has recently been announced that in order to develop the promising cotton-growing country in Natal and Zululand, the Union Government have decided to extend the railway northwards from Somkele to the Pongola River. In these cases the railways will presumably not be self-supporting during the first few years, but the Governments concerned have adopted a farsighted policy in that they have recognized that development must be slow and uncertain until the railways are constructed in anticipation of the countries' future requirements. Under the section devoted to India in this paper, mention is made of the vast irrigation scheme on the Indus which will cost the Government of India over 12 millions sterling, while a similar project, though on a smaller scale, is under construction in the Punjab on the River Sutlej. As regards harbour works, mention may be made of the large sums spent by the Sudan Government upon Port Sudan, which have resulted in making it one of the most up-to-date harbours of the world. The Government of Kenya also are, in connection with the scheme which is being assisted by the Imperial Government, providing for the extension of the wharves of Kilindini Harbour, so as to render it more capable of dealing with the rapidly increasing export trade passing down the Uganda Railway.

Enough has been said on this head to illustrate the fact that the Imperial and local Governments are fully alive to the vital necessity of developing, by means of public works, those countries whose prosperity is so largely dependent on the cultivation, for export, of tropical agricultural products, of which cotton is in many cases the most important.

That in many countries, and especially in tropical Africa, transport is often the limiting factor to the development is a view held strongly by the Corporation, and they have made urgent representations to this effect to the Imperial Government. It is gratifying to report that their representations have always been received most sympathetically and have been followed by developments in railway extension work, including some of those that have just been mentioned.

As regards the marketing of cotton, assistance has been given both by local Governments and by bodies such as the British Cotton Growing Association. In Australia the Queensland Government decided that,

in order that farmers should be induced to plant cotton it was necessary that they should be assured of a market for their produce at a price at which its cultivation would show a profit, and that such help should be given for the next few years so that the industry might become fairly established. All cotton is therefore bought by the Government at a price guaranteed over a period of years. Further details of the arrangement are given under the section dealing with Australia. The arguments in favour of a guaranteed price are more convincing perhaps where cotton cultivation is in the hands of native races who are slower to grasp the inevitability of fluctuations in the market, and in this direction the action of the British Cotton Growing Association, in guaranteeing a price at the beginning of each season in Nigeria and in Nyasaland, has proved a valuable stimulus to increasing the popularity of cotton cultivation among the natives of those two countries. Nigerian buying has now been thrown open as it is considered that the industry is firmly established.

In all the Colonies and Protectorates of Africa in which cotton is grown by natives, its sale is organized to a greater or less degree by the local Government. In some countries, such as Uganda, the crop may either be offered for sale at a ginnery or be brought to prescribed markets where it is sold by open competition among merchants and ginners; in others, such as Tanganyika, it is frequently sold by auction. But, whichever course be adopted, the market is held under the superintendence of the officers of the Agricultural Department whose duty it is to see that no abuses exist the effect of which would be to cheat the native grower of a fair price for his produce.

Turning now to the other type of the problems of cotton-growing, which are those relating to its cultivation, we again find the Governments taking an active part and lending a helping hand wherever it is needed. In all countries legislation is in force to ensure that all imported seed is free from insect pests and disease; in many, also, the distribution of seed is in the hands of the Agricultural Departments themselves, or of agents authorized by them for this purpose. Those Departments, moreover, in co-operation with the political officers, carry on propaganda work to popularize cotton-growing, and their officers, either directly, or through trained native instructors, are constantly ready with advice on its proper cultivation and on the treatment of any disease or pest to which the crop may fall a prey. It will readily be seen, therefore, that if cotton-growing is to be increased effectively a first essential is that the Agricultural Departments should be staffed with a sufficient number of suitably trained men. Everywhere there is a need of more experimental work, more demonstration, more training of those engaged in growing cotton. And this deficiency is not due wholly to the insufficiency of the funds at the disposal of the local Governments: there has also been a lack of provision of facilities for giving men the specialized training that is required to enable them to deal with the specific problems of cotton cultivation. Credit may be claimed by the Empire Cotton Growing Corporation for having made the increase of the supply of adequately trained men for the Agricultural Departments one of their first objectives. It was decided to offer each year a number of Studentships for advanced training in the botanical sciences or in agriculture. These have been increased in number each year, while the opening in October, 1922, of the Imperial College of Tropical Agriculture in Trinidad provided means whereby a certain proportion of these students can receive a practical training in

tropical agriculture before entering service in the cotton-growing countries. Full advantage has been taken by the Corporation of this opportunity ; a grant of £500 a year has been made to the college and four of its post-graduate students are now taking a special course in Trinidad under its professors.

To enable the Agricultural Departments to enlarge their staffs by the employment of such men, the Corporation have intimated their willingness to make grants to the local Governments to be devoted to such further work in connection with cotton growing as they would be unable to carry out with their own unaided resources. In many Colonies, until the agricultural staffs are considerably strengthened both as to the number and the qualifications of their personnel, this will remain the limiting factor in the output of cotton. More trained European staff means not only more direct personal supervision, but, where the cultivators are natives, more trained native instructors also, so that correct agricultural methods in cotton cultivation may be demonstrated in all suitable parts of the Dependencies. Where a cotton-growing Dependency is willing to produce side by side with its agricultural estimates a supplementary budget showing what further cotton work, in addition to that which it is prepared to do unaided, can be put in hand if the Corporation will make a grant to enable the staff to be increased or the scope of the work enlarged, the Corporation consider that this is one of the directions in which their funds can be most usefully employed as a means of directly leading to an increase in production and an improvement in quality.

Another direction in which the help of the Corporation was urgently sought from the outset was the provision of senior men with long experience of cotton-growing, whose services might be loaned by the Corporation to the local Governments in proved cotton-growing countries. Such men are phenomenally scarce, and the Corporation consider themselves fortunate in having been able to secure the services of four exceptionally able officers who have joined their staff, or have been temporarily borrowed, from the Indian Agricultural Service. Three of these have already been appointed as Cotton Specialists in Nyasaland, Queensland and Tanganyika respectively, while a fourth is leaving shortly for South Africa, where he will advise the Union Government on all matters affecting cotton-growing and marketing.

Another matter which has received the close attention of the Corporation is the need for research on fundamental problems underlying the cultivation of cotton and the properties of the fibre. The latter are mainly occupying the energies of the staff of the British Cotton Industry Research Association, but, in addition, there is an immense field of research to be worked in the actual growing of cotton, the study of the life of the plant in health and disease, and the effects of heredity by which its constitution is determined and can be controlled. Such problems as these can probably be best worked out at a Research Institute in a cotton-growing country, and the Corporation have appointed a special committee to consider the advisability of establishing such an institute and, in the event of their recommending it, to report as to where it should be placed, and with what staff it should be equipped. In the meantime the Corporation have felt that it was necessary that agriculturists abroad should be able to refer, for investigation by scientists at home, problems for the elucidation of which they have themselves neither the time, facilities, nor frequently the special qualifications. To meet this need grants of

£1,000 a year for five years have been made to the Imperial College of Science in London, the School of Agriculture at Cambridge, the Agricultural Experiment Station at Rothamsted, and the Botanical Department of the University of Manchester. At each of these Institutions the services of a specialist have been retained who will devote his time to the special study of those aspects of Plant Physiology and Pathology, Genetics, Soil Physics, Mycology and Entomology respectively which are of especial importance in cotton-growing, and he will deal with applications for advice from agriculturists and botanists in cotton-growing countries.

In all matters relating to research work the Corporation attach importance to the maintenance of close touch with the British Cotton Industry Research Association. Already arrangements have been made whereby the latter body have kindly agreed to allow the Corporation's post-graduate students to spend a short time at the Research Association's laboratories in order that they may gain a general knowledge of the types of problems that are being investigated there. In the event of the Corporation deciding to establish a Research Institute abroad it is hoped that its staff and the botanical staff of the Research Association in this country will be practically interchangeable, so that the Corporation's workers would be able to carry out at home research on problems that have arisen abroad, but which could be more conveniently worked out under non-tropical conditions, while the staff of the Research Association would be able to put to the test under field conditions results obtained by them in the greenhouse and the laboratory in England. A small co-ordinating committee of the two bodies has been set up to deal with matters of common interest, and this body has recently discussed the steps that can be taken to submit to suitable spinning tests samples of cottons produced by the selection work that is being carried out in different parts of the Empire either by the Corporation's Cotton Specialists or by the staffs of the Government Departments of Agriculture.

It is one of the aims of the Corporation to collect and disseminate knowledge of all matters of interest to scientific and other growers of cotton, and to make growers and spinners more familiar than they are at present with one another's requirements and the difficulties with which each is faced. With this object a quarterly journal has been started under the title of *The Empire Cotton Growing Review*, the first number of which was issued in January of this year. It is hoped to include in the journal not only information as to the activities of the Corporation, so that spinners and growers may be kept in touch with the work that is going on, but also to publish articles on cotton-growing problems from all parts of the Empire, and thus to keep Directors of Agriculture and others in touch with the experiments that are being conducted, and the development that is taking place in the several Dominions and Colonies. Much of this information may not be of the nature of original contributions, but must be derived from Government reports, and agricultural, technical and trade journals. It is hoped, however, that its presentation in one publication will be convenient, and may serve to bring under the notice, especially of workers abroad, information that they are glad to have and might otherwise have missed. It is hoped, moreover, that the circulation of the journal among spinners will add to their knowledge of the lives and experiences of those on whom they are dependent for the supply of their raw material, and the conditions under which it is grown.

At the same time, articles dealing with the problems of the spinning industry should be both interesting and helpful to growers, for although the latter are naturally aware that they grow cotton in order that it may be spun, they are only too seldom familiar with any of the processes through which their cotton passes in the spinning mills, and have as a rule but a vague knowledge of what is implied by the empirical, but perhaps the most useful, definition of good cotton as being that which makes good yarn.

The quantity of cotton produced in all parts of the Empire except India, is at present only very small, say 180,000 bales. But from one point of view this fact is not wholly to be deplored since in some ways it simplifies the task of those whose desire it is to ensure that from the start a great industry shall be built up on sound foundations. Some details given below of the difficulties encountered in India, where a Cotton Committee is at work on lines similar to, but naturally narrower than, those of the Corporation, show how other parts of the Empire may learn from their experience. The problems confronting that Committee at the outset of their work, such as wilful admixture of cottons of different types, mercifully do not bulk so largely in countries where cotton-growing is still in its infancy. If, therefore, the industry can be planned from its inception on sound scientific principles, and kept on the right lines by the encouragement and supervision of the local Governments who are determined to make the export of cotton of good quality one of their leading highroads to prosperity, there is every reason to hope that the Corporation, by the adoption of a farsighted policy carried through with unremitting energy, will play an important part in enabling the Empire to make a notable contribution to the world's cotton crops.

A brief account follows of the present position of cotton-growing in all the chief producing countries in the Empire.

#### India.

It is clear that in a paper such as this, which aims at giving a brief but comprehensive survey of cotton production in all parts of the British Empire, space precludes justice being done to India, whose cotton production is second only to that of America of all the countries of the world.

For the years 1913-22 the average Indian crop exceeded 4½ million bales, and it now amounts to 24 per cent. of the world's cotton. It is not unnatural, therefore, that it is to India that attention should be turned as offering the most speedy solution of the difficulty of making up the shortage caused by the decrease of supplies from America. But unfortunately the greater part of the cotton produced by India is too short in staple to be of service to replace American cotton, and though improvement in the staple is one of the problems that is engaging the earnest attention of the Indian Central Cotton Committee, there are many difficulties to be overcome. Firstly, the actual growing season is short—an important consideration, for in general the longer-stapled cottons mature less rapidly than the short-stapled. The shortness of the season is due to two main causes: in the rainfall areas the rains are not always well distributed, and in case of shortage the soil does not retain sufficient moisture to bring the plant to maturity; in the irrigation areas in the north there is risk of frosts during the later stage of development. In all parts, moreover, the risk of damage from blight or other causes naturally increases with the duration of the crop. Secondly, among the

native cultivators short-stapled cottons are more popular as giving heavier yields per acre, and being generally less troublesome to grow; while, thirdly, the prevalence of adulteration by mixing short staple in with long staple by ginners and middlemen gives the grower but little assurance that he will receive a higher price for his better cotton should he be persuaded to try it. This is a factor in the situation which received very early attention at the hands of the Indian Central Cotton Committee, and on their recommendation legislation has been passed by which inferior cottons will be debarred entrance into areas where long-stapled cottons are grown and ginned. Further legislation is contemplated which requires the compulsory marking of bales at the presses so that adulteration may be more readily traced. So far as concerns land already under cultivation, an increase in the production of uniform longer-stapled cotton can only be secured gradually by hybridization and other measures of improvement in the types at present grown, with a view to increasing their yield, while at the same time opportunities for admixture of seed should be reduced to a minimum.

An important scheme for the production of longer-stapled cotton is that of the B.C.G.A. (Punjab), Ltd., at Khanewal. The Company own an estate of about 7,300 acres, of which about 1,900 acres are under cotton. Of these about 1,300 acres are American cotton, having a staple of 1 in. to  $1\frac{3}{16}$  in. Desi cotton is also grown and although the staple is only about  $\frac{1}{2}$  in. it is a strong competitor with the American types among growers, in spite of its lower value, by reason of its higher yield and superior ginning outturn. The land on the estate is divided into 25-acre blocks, and leased to tenants, and there are more applicants than there are plots to be leased.

Greatly increased cotton production may be looked for as the result of the important irrigation schemes now being undertaken, which are ample evidence of the benefits that India is experiencing from British rule. Already, in the Punjab, the area under irrigation is over 10 million acres, while another scheme is under construction by which a great additional acreage will be irrigated from the River Sutlej. At the present time, of the total cropped area in the Punjab, nearly one-half is irrigated by canals, wells or other sources. Of other recent undertakings by far the most important is the Lloyd barrage of the Indus in Sind, of which the Governor of Bombay at the time, Sir George Lloyd, laid the foundation stone in October last. This vast scheme, which will cost over 12 millions sterling, will bring under cultivation an area greater than that under cultivation in the whole of Egypt. Of this over three-quarters of a million acres should be cotton land, and on this area, the soil being good and the climate satisfactory, it should be possible to grow cotton of the best American types. In the Deccan also important irrigation schemes have recently come into operation. In Madras also the Cauvery Reservoir project will not only safeguard the Cauvery delta, but will bring much new land under cultivation. In the United Provinces the work of constructing the great Sarda Canal scheme is in active progress. Of the area commanded about  $1\frac{1}{2}$  million acres will be irrigated.

From what has been said it will be seen that means are being provided whereby India will ultimately be enabled to make important contributions to the resources of the Empire in longer-stapled cottons, but the programme of work that is being so energetically undertaken by the Indian Central Cotton Committee gives ground for the hope that it may be unnecessary to await the development of these irrigation projects before

such an improvement will be effected in the present methods of cultivation, and in the types grown, that the output of improved cotton will be notably increased, and the belief has been expressed that within five years India's crop should reach 6 million bales, of which 2 million should have a staple of  $1\frac{1}{16}$  in. to  $1\frac{1}{8}$  in. Such an advance would go far towards relieving the present dependence of the world on America for cotton of this staple. To achieve such a result further research work is needed in order to produce still earlier maturing varieties with a higher yield; moreover, means must be at hand for dealing with pests and diseases, since the exotic types are usually less immune than the indigenous varieties. Furthermore, the legislation to prevent mixing must be effective, so that the grower of improved cottons may be assured of an enhanced price for his superior produce.

At the present time the Empire Cotton Growing Corporation is co-operating with the Indian Committee with a view to developing a market for Indian cottons in Lancashire. Six varieties, already well known on the Liverpool market, are being subjected to commercial spinning tests, so that their actual spinning qualities and their percentages of waste under normal conditions may be accurately known. The raw cottons and the yarns produced from them will, it is hoped, be exhibited in Lancashire, together with the results of the tests made on each. Bales of other types believed to be suitable to Lancashire's requirements are also on their way from India, and it is hoped to deal with these similarly. By this means spinners will be made more fully aware of the merits of India's better types of cotton, and it is hoped that the result will be apparent in their increased consumption, so that as their supply develops they may be at once absorbed, and encouragement thus afforded to increased production.

#### Australia.

During the past few years the subject of cotton-growing on a large scale has been taken up with remarkable enthusiasm, especially in Queensland. There are undoubtedly very large areas in Australia, particularly in Queensland and to a smaller extent in New South Wales, where both soil and climate are well suited to cotton. The prospects of any great extension in a short time are, however, limited by the present lack of labour, its quality, and its cost. Australian statesmen are convinced that their cotton grown on the basis of white labour can compete in the world's markets. The quality of the cotton is satisfactory, and if the Australian Government's view proves correct, that Continent should be able in the future to make a considerable addition to the world's cotton supplies.

The Empire Cotton Growing Corporation have gladly rendered what help they could. They secured a year ago the services of Mr. G. Evans, formerly Director of Agriculture, Bengal, and lent them to the Queensland Government for a period of three years. It is gratifying to record that Mr. Evans has been of the greatest help to the Government, who have made him Director of Cotton Culture in that State.

In Queensland alone the acreage under cotton has increased more than 10 times in the past three years. Last season, 1922-23, 7,863 bales of 500 lbs. each were produced, and for the season 1923-24, it is estimated that over 100,000 acres have been planted. The Government fully realize the importance of securing an adequate supply of uniform seed, and Government seed farms are being started. Experiments made so far have gone to show that the same seed may not be the best for all

parts of the State, since both the soil and the rainfall are different on the coast from what they are further inland ; it is intended, therefore, to have several seed farms and to grow in each only that variety which is best suited to the district which it serves. The most generally successful variety up to the present has been Durango. But the seed has hitherto consisted largely of a mixture of several types of American Upland, together with some Sea Island and Egyptian, and the Government are consequently doing their utmost to encourage the foundation of the industry on a "one-variety" or "community" basis, whereby each district will grow only the type best suited to its own conditions. This scheme can only develop fully, however, when the selection and multiplication work at the several seed farms has proceeded far enough to produce a sufficiency of each kind of seed required for the different districts.

The industry is entirely controlled by the Government, and the measures taken to develop and encourage the industry are set out in the Cotton Industry Act, which became law early this year. Its provisions cannot be quoted fully in this paper, but it may be mentioned that (1) the Government takes power to acquire all cotton grown in the State at a price which this year is 5½d. per lb. of seed cotton for good quality cotton of 1½ in. staple, and falls to 4d. per lb. for good cotton under 1½ in. staple ; (2) no seed may be sown other than that supplied by the Department of Agriculture ; (3) no ratoon cotton may be grown ; (4) all cotton plants shall be destroyed by a fixed date every year. Considerable protest against the prohibition of ratoon cotton has been made by a small but vocal section among the growers. The Government has, however, maintained its uncompromising attitude, giving as its reasons the deterioration in quality shown by ratoon cotton, and the danger caused by its tendency to harbour pests. In an attempt to disarm its critics it is even going so far as to have samples of ratoon cotton examined in the laboratories of the British Cotton Industry Research Association and subjected to commercial spinning tests, while field tests against annual cotton are also being conducted. The Government has appointed an official grader selected by the Corporation at its request, and he is also training a staff of assistants.

As regards insect pests, neither the Mexican boll-weevil nor the pink boll-worm have as yet appeared in Queensland, but the northern peach moth, the rough boll-worm, and the maize moth do serious damage. The first-named does the worst damage, for it not only pierces the bolls and thus damages by its own action, but it permits the entry of the spores of a fungus which produce internal boll rot. The Corporation made an offer to the Commonwealth Government to appoint and pay the salary of an experienced cotton entomologist, and this offer has been accepted. The entomologist appointed sailed for Australia in February ; he has been attached to the Commonwealth Government rather than to that of any one of the States, since his duties will probably necessitate his travelling in all parts of the Continent, though the greater part of his work will be in Queensland.

Apart from Queensland, Mr. Evans has visited New South Wales, Western Australia and the Northern Territory. In none of these is cotton-growing yet carried on extensively, but in New South Wales particularly it is being taken up with enthusiasm, and it is estimated that several thousand acres will be planted this year. The local Government have guaranteed a price and made with the British Australian Cotton

Association an arrangement to gin, ship and market all the cotton grown in this State, similar in terms to that made with the Association by the Queensland Government.

In both Western Australia and the Northern Territory pink boll-worm has been identified. To prevent risk of the pest being introduced into Queensland, arrangements have been made for all cotton grown in both areas to be ginned only at Port Darwin, where a new ginnery is being erected for the purpose.

In all States important schemes are under construction for growing cotton under irrigation both by itself and with fruit.

What has been said will suffice to show that Australia is making determined efforts to establish a cotton-growing industry. Its success on a large scale would appear to depend on three factors—(a) a sufficient supply of labour at a reasonable cost ; (b) the maintenance of good quality ; (c) the continuance of the price of middling American at not less than 1,- per lb., though a slightly lower price may still enable it to be grown at a profit, as increased experience and improved organization is sure to lower the cost of production. It has already been recognized in Queensland that the best method is to include on a mixed farm only such an acreage of cotton as can be picked by a man and his family with little or no hired labour, and it is, therefore, a gratifying feature that the average holding this season is not more than 12 acres per farmer.

#### South Africa.

It has long been recognized that cotton of good quality could be grown in South Africa, but it is only of late years that development has been at all marked. Hitherto a defect in the lint has been its varied lengths of staple, due to mixed seed and absence of expert grading. Latterly, however, the Union Government, in combination with private enterprise, have taken up the industry wholeheartedly in the earnest desire to extend the cultivation of the crop in all suitable parts of South Africa to the fullest possible extent.

In order to gain first-hand knowledge of the country's possibilities as a potential cotton producer, the Corporation sent out Mr. G. F. Keatinge, C.I.E., to make a tour of the country. This he did between November, 1922, and March, 1923, and his report has been most carefully considered by the Corporation, who reached the following important conclusions—(a) that South Africa had very great possibilities as a cotton-growing country, and that the efforts that were being made to develop it should have their fullest support ; (b) that the expert technical staff then at the disposal of the Union Government was not numerically strong enough to deal with the large and particularly varied areas in which cotton-growing is commercially possible ; (c) that improved communications are essential.

The next step was taken while General Smuts, Prime Minister of South Africa, was in England in October last. A deputation from the Corporation laid before him the conclusions they had formed, and explained the reasons on which they were based. They offered to obtain and pay the salary of the most experienced expert they could find to advise the Union Government on all matters relating to cotton-growing and marketing, and to attach to him a small but highly-qualified staff. This offer was promptly and gladly accepted by General Smuts on behalf of his Government, and the Corporation consider themselves particularly

fortunate in having been able to engage the services of Mr. S. Milligan, who has resigned his position as Agricultural Adviser to the Government of India to go to South Africa as the Corporation's expert. Mr. Milligan is being accompanied by an experienced plant breeder, and the Corporation would be prepared to add to his staff, if he considers it necessary. The specialized scientific work that will immediately confront these experts will consist doubtless in co-operating with the Department of Agriculture in producing and distributing a supply of pure seed, so as to render the South African type as uniform as possible.

To ensure a ready market, the length of staple should be  $1\frac{1}{8}$  in. to  $1\frac{3}{16}$  in., preferably the latter, so as to allow of some deterioration and still give the farmer a product that will be marketable at a premium over middling American. The Department of Agriculture is already conducting its research work, in close conjunction with the botanical and agricultural faculties of the Transvaal University College.

With regard to communications, the Corporation expressed to General Smuts their opinion that the most effectual immediate stimulus would be given by the extension of the existing railway in Natal northwards from Somkele, the present terminus, to the Pongola River. This extension would open up a country in which much cotton is already being produced, but which is capable of remarkable developments when the necessary transport is provided. The Prime Minister undertook to give the suggestion most careful consideration, and since his return to South Africa he has announced that the Government will construct the extension as suggested. Mr. Keatinge reported that the whole of the country northwards to Komatipoort should prove suitable for cotton, and it is to be hoped, therefore, that it may be found possible before long to continue the new railway to the north, thus opening up the fertile country on the west of the Lebombo Mountains. The railway immediately contemplated, viz., Somkele—the Pongola River, will traverse Zululand, and already the Government are developing the Crown lands there; an extensive survey is being undertaken, farms are being laid out, and experimental farms are being planned.

Among other steps taken by the Government with a view to organizing the rapidly growing industry on sound lines may be mentioned the passing of a law requiring all cotton to be pressed to a uniform density and standardizing the bale at 500 lbs. All ginneries must be registered, and all cotton for export must be graded by a Government grader, and the type mark awarded by the grader, together with the ginner's mark, must be placed on each bale. A charge of 1/- per bale is made for grading. There is also a special levy of 1/- per 100 lbs. of lint exported; the proceeds of the levy are earmarked for the furtherance of the cotton industry.

Reference has only been made so far to the possibilities of Natal and Zululand, but the cotton belt in South Africa extends also north-westwards from Komatipoort through Leydsdorp, Tzaneen and Spelonken to the Zoutpansberg Mountains, while to the west of these, and north of Pretoria, lie the Rustenburg and Waterberg areas, where cotton has for many years been and is still being grown in increasing quantities. The railway from Rustenburg to Pretoria and the line eastwards to Komatipoort tap the areas of Nelspruit, Barberton and Malelane, where cotton is being grown. There is similarly already a railway to convey the produce of the Spelonken, Leydsdorp and Tzaneen areas to Komatipoort, from which

point to the northern limit of the cotton belt the distance is about 250 miles.

All the above areas are, and will be, developed by white settlers working with native labour. The question of promoting an industry of cotton-growing by natives on their own small holdings was discussed with General Smuts, and his view was that it was preferable first to educate the natives in sound cultural methods on existing farms before encouraging them to take up cotton in the native reserves. The Administration of the Transkei would welcome the introduction of a profitable cash crop for the natives, but thorough experimental work would first be necessary to establish definitely which type is best suited to the district, because failures due to insufficient knowledge would cause general discouragement.

Taking the country as a whole, the Agricultural Department estimates the average yield at 200 lbs. of lint per acre.

The South African crop has increased from 764,584 lbs. of lint in 1918-19 to 2,400,000 lbs. in 1922-23. In order to cope with this rapid expansion an organization is needed to assist in the financing and marketing of the crop. There are already a number of local co-operative associations of farmers, and two years ago a Central Co-operative Cotton Exchange was formed as an unlimited co-operative society whose objects included the grading, pooling and marketing of cotton, and the negotiations of loans on the crops of the smaller growers to enable them to meet the costs of harvesting and transport. This body has been unable to function fully, however, owing to the fact that it received only the partial support of the growers. In these circumstances it seems probable that the efforts of the Government to make cotton one of the most important crops in South Africa will only become fully successful if they are able to lay down a policy including a scheme to provide general ginning, marketing, and financial facilities, in order that the industry may be in a position to compete with other cotton-growing parts of the world where it is already highly organized. The Corporation invited General Smuts to consider this point on his return, and promised their support in so far as it could be given from this country, though it is felt that any such scheme must be pre-eminently South African in its management.

#### Southern Rhodesia.

Southern Rhodesia is now a self-supporting Colony, with its own separate administration and its own Department of Agriculture. It is understood that the Government is anxious to develop cotton cultivation if it is found to be possible under the climatic conditions of the country, but the reports which the Corporation have hitherto received as to the possibilities for cotton production have been somewhat conflicting.

With a view to ascertaining the chances of success in this country, the Corporation are endeavouring to find an expert to report upon the suitability of the districts that have a sufficient and dependable rainfall. If it is decided that there are prospects of considerable production the expert would remain in order to advise the Agricultural Department and settlers on matters relating to cotton. A certain amount of cotton has been grown in Southern Rhodesia for some years, but the industry has not so far developed on extensive lines.

It was reported in January last that tenders had been invited for a ginnery to be erected at Salisbury, and it was stated that the machinery

would be ready in time to deal with the crop planted in November and December last. If this crop is a success a considerable increase in the acreage under cotton may be expected this autumn. Several farmers are giving cotton-growing a trial, and the staff of the Agricultural Department have issued full details on the cultivation of the crop.

### The Anglo-Egyptian Sudan.

The fact that, so far as long-staple cotton is concerned, the Sudan possesses possibilities of a bigger output than any other part of the Empire, and the important developments bearing directly on cotton production that have taken place in the country during the past few years, justify the devotion of rather more space to the Sudan in this paper than would perhaps be warranted by its present production.

In order of importance, the first cotton-growing project to be described is the Gezireh Plain, which lies between the Blue Nile and the White Nile some 150 miles south of Khartoum. The whole area comprises about 3 million acres suitable for cotton, and has a slight fall from east to west, making it a comparatively easy proposition as regards both irrigation and drainage. The main operation is the building of the dam, over two miles long, on the Blue Nile to hold up the water. This will give a storage capacity of about 500,000 million gallons. Owing to various difficulties, mainly financial, the work which was started in 1919 was practically suspended early in 1922. Happily these difficulties were successfully overcome, and in June of that year the Foreign Secretary was able to assure a deputation representative of the whole British cotton industry that the project would be completed. The dam will, however, only be used at present for the development of 300,000 acres, of which one-third will be under cotton each year. Egypt is extremely nervous as to her water supply, and the Sudan Government has accordingly consented to this arrangement, whereby the water to be stored by means of the dam at Makwar shall be limited to enough for the irrigation of the present area. Probably this restriction would be withdrawn, however, if compensation water could be provided for Egypt by the construction of a dam on the White Nile. Besides the dam itself there are some 850 miles of canals to be constructed; the work of canalization has made good progress, and it is anticipated that water for 100,000 acres of land under cotton will be available by July, 1925. Meanwhile, four pumping stations are at work irrigating some 20,000 acres of cotton land all within the area of 300,000 acres already described. The actual growing of the cotton is in the hands of native tenants, while the ploughing, seed distribution, minor canalization, ginning and marketing are carried out by the Sudan Plantations Syndicate. The three-cornered partnership arrangement whereby the proceeds of the crop are divided between the tenants, the Government, and the Syndicate was described by Mr. Thomas in his paper read at the Stockholm meeting of the Congress. The type of cotton grown is the Egyptian Sakellarides, which experiment has shown to be the most profitable for the Gezireh.

The completion of the Gezireh irrigation scheme will open a new era in the economic history of the Sudan. Conditions in the Gezireh will be entirely altered when the country ceases to be dependent on the small and unreliable rainfall, and the production in large quantities of a valuable crop such as cotton will bring a degree of prosperity hitherto absolutely unknown.

Another important project is the development of the Kassala area, where cotton is grown in the delta of the River Gash. The Gash, which rises in the foothills of Abyssinia, drains a long, narrow area of mountainous country with a heavy but spasmodic rainfall. Its flow in consequence varies considerably. The flood reaches Kassala during the first ten days of July, and its duration may be taken as 75 days. Just north of Kassala it begins to spill over the delta. This delta is extremely fertile, and a certain amount of Sakellarides cotton has been grown there for several years. No means are at present available for storing the water, so after it has soaked into the soil the cotton is sown and there is no rain after October. The limiting factor was lack of transport, all the cotton having to be carried on camels to Suakim, a distance of 250 miles, at a cost of 1d. to 1½d. per lb. of lint. Moreover, the time of transit was interminable, and during the rainy season transport by camel was extremely difficult. The Empire Cotton Growing Corporation and the British Cotton Growing Association have pointed out the possibilities of this area if a railway were built, and last year the Imperial Government gave the necessary impetus by guaranteeing the railway up to 1½ million pounds. This railway is now under construction from Kassala to Thamiam, a station on the Port Sudan—Atbara line, a distance of 217 miles. It is expected that the line will be finished early in 1925. Within 10 years of the completion of the railway it is anticipated that 100,000 acres in the Kassala area can be placed under cotton. This will mean a substantial addition to the Sudan crop—possibly as much as 100,000 bales—though the yield from this district, where there are no expensive irrigation works, must vary with the Gash flood.

To the south of the Kassala Province lie the districts of Gedaref and Mefaza, where the rainfall is over 25 in. and where it has been shown that American cotton can be grown. Ultimately it is hoped that the railway will be extended through these two places from Kassala, joining the present line at Senaar and thus forming a new and valuable link in the economic development of the Eastern Sudan.

At Tokar, in the Red Sea Province, there is another valuable cotton area. Here Sakel cotton of excellent quality has been grown during the last few years. The conditions at Tokar somewhat resemble those at Kassala, inasmuch as the cultivated land is the delta of a river—the Baraka. The area irrigated varies, but may be as much as 160,000 acres. Some control of the water is necessary, however, if large areas are to be placed under cotton. The largest quantity produced here up to the present was 18,000 bales of 400 lbs. in 1920–21. The cotton is conveyed by a light railway over the 20 miles to Trinkitat on the Red Sea.

A certain amount of American cotton is also grown in the Sudan. In the Blue Nile Province alone the crop in 1922–23 grown by the Sudan Plantations Syndicate was estimated at about 1,500 kantars, or nearly 400 bales of 400 lbs. each. A beginning has also been made in the Kordofan Province, and the Shilluk tribe on the Upper Nile are beginning to realize that cotton-growing might have certain advantages in providing them with a means of buying their cattle or wives instead of raiding for them.

Almost the only adverse factor in the Sudan has been the prevalence of two pests—in particular thrips and aphis—which have done considerable damage. In the beginning of this year the Sudan Government, with financial assistance from the Empire Cotton Growing Corporation

and the Sudan Plantations Syndicate, engaged the services of Sir John Russell and Dr. Martin Leake to report on the lines upon which agricultural research in the Sudan should be conducted. It is hoped that from their recommendations a comprehensive programme of research will be framed, as a result of which measures may be adopted to prevent deterioration of the soil, a more economic system of crop rotation worked out, the methods of cultivation improved, and means devised for controlling pests.

An estimate has been made that within 15 years from the opening of the Blue Nile irrigation scheme the Sudan may be expected to produce a million bales of cotton.

#### **Uganda.**

The systematic cultivation of cotton in Uganda is entirely of recent origin. The crop is grown under rainfall conditions, and the cultivation is wholly in the hands of the native population, which numbers about 3,000,000. Since the setback caused by the war the progress has been remarkable. In 1914 production exceeded that of any previous year and amounted to 42,000 bales, whereas the crop harvested in 1923 reached a total of approximately 90,000 bales, while estimates (possibly excessive) for this season put it as high as 120,000 bales. The local Government is fully alive to the fact that cotton-growing is the vital interest of Uganda, and that the prosperity of the country rests largely on the development of the industry and the maintenance and improvement of the quality of the crop. The general organization is in the hands of the Government, who, through European officers and native instructors, teach the natives how to grow and handle the crop. Government seed farms have been formed where, by careful selection work, seed of the highest quality is raised and distributed to the native cultivators. The cotton is of high quality and is used against staple American as well as Upper Egyptian for counts ranging from 30's to 46's twist and 42's to 64's weft. As regards the commercial side of the industry, a comparatively large number of European and Indian firms compete in the purchase of the crop, and this maintenance of competition has in normal times proved ample to ensure an adequate price being paid to the grower; there has consequently been no need to introduce any system of a guaranteed minimum price as in some other African Protectorates. The Government consider that new areas can be planted with cotton if they are opened up in the first instance by the Agricultural Department by means of mechanical cultivation. To assist in this direction the Empire Cotton Growing Corporation presented to the Uganda Government two motor ploughs and tractors, which have been used with satisfactory results in placing new land under cultivation. Last year the Corporation provided about 100 ox-drawn ploughs, which the Government lent or hired to native cultivators to enable them to extend the area of the land under cotton. If the results thus obtained are promising the Corporation have consented to consider favourably a request to supply a further number of similar ploughs. The success which has attended the establishment of the cotton-growing industry in Uganda undoubtedly owes much to the interest and enthusiasm of the Government, and in particular to the judgment and foresight displayed by the Director of Agriculture.

The Uganda Government have asked the Corporation to supply them with the services of some additional agriculturists. The Corporation are

fully alive to the desirability of strengthening the Agricultural Departments of the cotton-growing countries of the Empire, and are convinced that the provision of a sufficient number of efficient agriculturists is one of the chief factors in increasing production. At the present moment there are unfortunately no men available, but good results are hoped for from the system of post-graduate studentships that the Corporation have inaugurated, and it is hoped next autumn to place some men at the disposal of the Uganda Government.

Future development of cotton-growing in Uganda is largely a transport problem. The extension of the industry is limited at the moment by the capacity of the present cumbrous means of transport to the port of Kilindini in Kenya Colony. Ginners in the Busoga area, for example, must now first load the cotton on to the railway to Jinja; there it is transferred to a steamer, or to lighters in tow of a tug, and conveyed to Kisumu, the terminus of the Uganda Railway on the east shore of Lake Victoria. Finally it is unloaded and placed on the train and sent down the railway to the port.

The recent decision of the Imperial Government to assist in the laying of a new line which will connect the Busoga Railway directly with Nakuru, a station on the main line of the Uganda Railway, is a welcome indication of their belief in the prosperity which the extension of cotton-growing will bring to Uganda. The new line will give the Eastern Province of Uganda (which produces the greater part of its cotton) direct access to the coast. It will also pass through the closely populated area of North Kavirondo, where production is steadily increasing, and it will set free for the actual growing of cotton numbers of natives who are at present employed as carriers. A northward branch from Tororo through Mbale to Kumi, and another branch southward into North Kavirondo are included in the scheme. The Governor has expressed the greatest confidence in the possibilities of increased cotton production on the completion of the new railway.

In connection with this scheme the main Uganda Railway will be relaid with a heavier track, to enable it to cope with the increased traffic, and some branch lines will be constructed in Kenya. The total amount required for these schemes is £8,000,000, which is far beyond the present capacities of Kenya and Uganda. The Imperial Government have accordingly announced that, in view of the importance of increasing the Empire's production of cotton, a loan of £3,500,000 will be granted free of interest for five years. The balance will be raised later by a public loan. The decision to construct this railway to connect Uganda directly with the sea is especially gratifying to the Corporation, who had emphasized to the Government the importance of this development.

Another instance may be mentioned of the desire of the local Government to leave no stone unturned in their efforts to do their utmost for the benefit of the industry. Experiments have recently been carried out with a system of road-rail transport to replace motor-lorries. A line has been laid down over a distance of 24 miles, and careful records have been kept of the capital and running costs. When the last report was received it was too early to state definitely to what extent the system might be used to replace motor transport by road, but the view was expressed that for certain classes of traffic the basic idea was sound. Further reports are awaited with interest.

### **Kenya Colony.**

Very little cotton has so far been produced in the Colony. Except in the valley of the Juba River much of the fertile country lies at too high an elevation to be suitable for cotton, and the total exports have never exceeded 1,200 bales in any year. Cotton is now being taken up, however, by the Kavirondo, who live on the east shore of Lake Victoria. The population of the Kavirondo district is large and fairly industrious, while the soil and climate appear suitable. About 10,000 acres were planted last season, though it is reported that some of the chiefs, in their eagerness to assist the Government, have planted with cotton land which they have been told repeatedly is not suitable. However, they were given the seed in the hope that they may combine equal enthusiasm with greater discretion next year. The Kavirondo crop is expected to cover 40,000 acres in 1924. Seven ginneries have either been erected or are about to be built in the country. The chief problem is the training of a sufficient number of native instructors and the provision of adequate supervision by the Agricultural Department's limited staff. The Corporation have addressed an enquiry to the Governor as to whether he is able to make any suggestions as to the directions in which he would welcome assistance from them.

The extension of the Uasin Gishu Railway (referred to under Uganda) will not only give Uganda direct railway communication with the sea, but will also be a valuable factor in the development of the North Kavirondo district of Kenya, the chief export crop from which should be cotton.

### **Tanganyika Territory (Mandated).**

This country, which has an area of some 350,000 square miles and a population of about 4,000,000, is well suited in many parts, both in soil and climate, to cotton cultivation. By 1913, after just over 10 years' work, the country repaid the considerable pains and energy that had been expended on the industry by the Germans to the extent of exporting a crop of 6 million lbs. Up to this date cotton had been grown both on German-owned plantations and as a native crop, and experience had shown that the most suitable districts were those of Mwanza, Morogoro, Rufiji and Lindi; several experiment farms had been established, and tests made with seed of various kinds. At first, attention was directed largely to Egyptian types, but the yields from Upland varieties proved in general to be higher, and the country appears to be suited rather to the production of medium staple cotton than of Egyptian.

In the paper presented at the Stockholm meeting it was stated that Major Horne had reported on behalf of the Corporation on the prospects of the Territory for cotton production. After consultation with the Governor, the Corporation offered the services of a senior Cotton Specialist; the offer was accepted and the specialist, who was seconded from the Indian Agricultural Service, arrived in Tanganyika accompanied by an assistant in July, 1922. At the request of the Director of Agriculture he proceeded at once to Mpanganya, on the Rufiji River, which had been the most important German cotton experimental station. There, and subsequently at Morogoro on the Central Railway, he has carried out selection work and varietal tests. Spinning tests have been carried out on samples sent home, and from a consideration of the results of these tests and of the agricultural characteristics of the selected plants it is

hoped to develop varieties specially adapted to the two areas mentioned, and ultimately to produce sufficient seed for general distribution to the natives in these districts. It is hoped that cotton-growing will thus be established in the Territory on a sound scientific basis.

Apart from this work, however, the Corporation confess to a certain disappointment with the results achieved by the Agricultural Department. The amount of seed distributed in 1922-23 exceeded by 65 per cent. the amount for the previous season, yet the crop was 2 per cent. smaller, amounting to 7,175 bales of 400 lbs. No doubt adverse weather contributed partly to this result, but the standard of cultivation among the natives is low, and the present resources of the Agricultural Department, both as regards personnel and funds, will probably be severely taxed to develop a system of propaganda through native instructors to teach improved cultural methods. The presence in the Territory of the Corporation's officer, who has had long experience of the crop in India, places at the disposal of the Government expert advice on matters relating to cotton-growing and marketing, of which the Corporation hope that the Agricultural Department will avail themselves freely. As an exceptional matter the Corporation contributed £5,000 to the budget of the Agricultural Department for the year 1923-24 in order that the staff might be enlarged and more cotton work undertaken.

Up to the present by far the greater part of the crop has been produced by native cultivators on their own holdings ; the problem, therefore, so far has been mainly one of extending and improving native production. Gradually it may be found possible to introduce the ox-plough in districts not occupied by tsetse-fly, an innovation which has played an important part in raising the output of cotton in Uganda to its present proportions. But primarily the native has still to be persuaded of the advantages to himself of a cash crop such as cotton. At present his wants are few ; his ambitions are practically limited to obtaining a sufficiency of food for his use and that of his family, and these can be satisfied with a minimum of inconvenience by setting his womenfolk to cultivate his small holding. But if he can be induced to see in cotton a source whereby he may not only pay his taxes, but also purchase for himself a few luxuries, he may eventually come to realize, if not the dignity of labour, at all events the material advantages to be derived from it. In a few years his luxuries will have become to him necessities, and the incentive to regular work will have been provided.

The progress of Tanganyika, in common with that of every other African territory administered by Great Britain, is entirely dependent on the provision of transport facilities. As already stated, the construction of a railway from Tabora on the Central Railway to Mwanza on Lake Victoria, and the reconditioning of the Lindi Light Railway and its extension from its present terminus on the Rovuma River to Lindi Harbour, which the Corporation have urged strongly in view of its immediate value to cotton production in that district, are now under consideration. This indicates the active interest taken by the British Government in the provision of transport which is absolutely essential to the development of the cotton-growing industry in the Territory.

#### Nyasaland.

In one important respect the problems affecting cotton-growing in Nyasaland differ from those of other British Dependencies in tropical

Africa. Eighty per cent. of the crop is grown on plantations owned by Europeans with hired native labour working under white supervision. It is essential, therefore, that the Government should be able to command the confidence of the planters and enlist their co-operation in any measures they may wish to take for the improvement of the crop. At the Governor's request the Corporation have appointed an experienced officer as Cotton Specialist, with a small staff of his own, to assist the local Agricultural Department in this branch of their work, and it is gratifying to be able to record that numerous letters from planters have testified to the valuable assistance that they have derived from this officer, and to the improvement in their crop consequent upon following his advice as to methods of cultivation. A cotton experiment station of about 100 acres has been established and placed in the charge of officers appointed by the Corporation. At this station it will be possible to work out some of the numerous problems that await solution, both as to the cultural methods best suited to different parts of the Protectorate and as to improvement in the seed supply.

For the plantations in the Highlands, the production of an early-maturing variety is badly needed, since the cold weather following the rains makes the growing season a short one. The crop seems also to be particularly susceptible to boll rot, which quickly spreads through the fields. In the low-lying parts of the country, cotton growing for the most part is a native industry, and a considerable extension is hoped for in this direction. It is true that the fact that the rains are apt to begin late means late planting, and the danger of subsequent rains preventing the development of the plants, but the Agricultural Department are devoting considerable attention to improved methods of cultivation under the special climatic conditions, and the Corporation's officer reports that their work is beginning to bear fruit. Another factor that will doubtless have a marked beneficial influence on native production is the contract entered into between the Government and the British Cotton Growing Association with regard to the purchase of the crop for a period of five years. Under this scheme the Association will purchase all cotton grown by natives on Crown lands at a guaranteed price. The nett profits will be shared equally between the Government and the Association, and a sinking fund will be created to enable the price to be maintained if the market is low. By thus assuring the grower of the price that he will obtain for his crop, a marked increase in native production may be anticipated, and it is hoped that in the course of the next five years the native crop will be firmly established. As a result of this arrangement the marketing of the crop has also been greatly facilitated. Market centres are now kept open throughout the season on certain days of the week, and buyers appointed by the Association attend to purchase the cotton brought in.

It has been reported that remedial measures against the red boll-worm are urgently required, and the Corporation have provided the services of an entomologist to devote his whole time to cotton pests in the Protectorate and thus relieve the Government entomologist.

Transport problems hold an important place in the development of Nyasaland. An extension of the existing railway northwards to the Lake is under consideration, but much difference of opinion exists as to the route to be followed. The respective merits of the several routes proposed need not be considered here, but it is hoped that a decision will be reached as soon as possible, so as to allow this important work to go

forward, and, in this connection the possibility of a subsequent extension to North-Eastern Rhodesia will doubtless not be overlooked.

The full development of the Protectorate is necessarily dependent on its being connected by railway with the sea. The opening of the Trans-Zambesi Railway has provided the link between the Zambesi and the port of Beira, but until the river is bridged, all exported produce necessarily incurs the delay and risk of damage inherent in the present system of ferrying across the Zambesi, while the necessity for handling and breaking bulk adds to the cost of transport.

The output of cotton is increasing satisfactorily, and the estimate of 6,500 bales for this season's crop, made last November, is an increase of 1,000 bales on last year, and nearly double the crop of 1921.

#### Northern Rhodesia.

From the 1st April, 1924, Northern Rhodesia has passed under the direct administrative control of the Colonial Office.

Attempts have been made to grow cotton in two widely separated areas, namely (*a*) on the Livingstone--Broken Hill Railway, and (*b*) in the neighbourhood of Fort Jameson, near the Nyasaland border. With regard to the first of these areas, the Agricultural Department carried out experiments at Mazabuka, about 180 miles by rail to the north-east of Livingstone, during the period of 1908-17. The results obtained were varied, but on the whole unsatisfactory; the conclusions arrived at were that the erratic nature of the rainfall in that neighbourhood rendered cotton a somewhat speculative crop. A few of the settlers have, however, successfully grown small quantities of cotton on their farms, and between 1,500 and 2,000 acres are said to have been planted this season. Two small ginneries and presses are reported to be in process of erection at Pemba, and enquiry has been made of the British Cotton Growing Association with a view to the supply of plant on the hire-purchase system for erection at Mazabuka, but it remains to be seen whether cotton can be grown economically in this area in view of the fact that the freight charged on lint from this ginnery to Beira, the nearest port, is between 2d. and 3d. per lb. In addition, the farms are scattered, and transport from the cotton fields to the ginnery may in many cases be a matter of considerable difficulty and cost.

Mr. Sampson, the Corporation's Cotton Specialist in Nyasaland, was able to visit the area round Fort Jameson, much of which is owned by the North Charterland Exploration Company. He came to the conclusion that much of the land is suited for cotton cultivation, but that the possibilities are at present limited by two factors, viz., the presence of the red boll-worm and the lack of cheap transport. The red boll-worm is proving a very serious pest in Nyasaland also, and, as stated in the section dealing with that country, an entomologist has been sent out to that Protectorate by the Corporation in the hope that he may be able to assist in devising some means of controlling the pest. The conditions in the Fort Jameson area are very similar to those in Nyasaland, and any measures for combating the boll-worm resulting from work done in the latter country should be applicable to the Fort Jameson area.

With regard to transport, the extension of the Nyasaland Railway may lead eventually to the provision for North-Eastern Rhodesia of an outlet to the coast in this direction. The present cost of transport, partly by

wagon and partly by motor-lorry, from Fort Jameson to the nearest station on the Nyasaland Railway works out at a little over 2½d. per lb. of lint.

### Nigeria.

Indigenous African cotton has been grown in Nigeria for generations, but the development of the export trade dates from the formation of the British Cotton Growing Association in Manchester in 1902. The whole of the cultivation is in the hands of native farmers, and the ginning and marketing of the crop was until recently carried out entirely by the Association, who guaranteed prices for first and second grade cotton to the growers before each planting season began. Close co-operation between the Agricultural Department and the British Cotton Growing Association has brought about a notable change in the character of the cotton exported, especially from the Northern Belt. Cotton of the American type was introduced into this area from Uganda, and its cultivation has been steadily improved and extended. The success which has attended this enterprise is due to the officers of the Agricultural Department, who have been unremitting in their efforts to ensure purity of the seed supply, and to the Association, whose guarantee of an enhanced price for the exotic cotton naturally provided a stimulus to cultivation.

In the Northern Belt over 10,000 bales of American cotton were purchased in 1922–23 and no native cotton ; in the Middle Belt the purchases were 479 bales of American and 1,179 bales of native, while in the Southern Belt only 40 bales were American and 4,355 were native. From these figures it will be seen that in the Northern Belt the cultivation of exotic cotton has been firmly established ; in the Southern Belt, however, it seems probable that the climate is not favourable to the cultivation of any of the varieties of exotic cotton that have hitherto been tried, and the Agricultural Department are steadily pursuing their experiments with a view to discovering a suitable variety that can profitably be substituted for the indigenous type, which is of considerably lower value to the spinners of Lancashire.

During the past few years the total crop exported each season has been in the neighbourhood of 15,000 to 17,000 bales, except in the season 1920–21, when the enhanced prices that the Association were able to guarantee caused 32,000 bales to be brought to market. But a gratifying feature is that American cotton has formed a steadily increasing proportion of the crop.

The possibilities for the future are believed to be very great. The immediate need is to secure the rapid multiplication of exotic seed in the Northern Belt, and this may entail the provision of extra staff for seed farms and for seed distribution. But once again the chief factor in increased production will probably be found in increased transport facilities. In the Northern Belt considerable areas of potential cotton-producing country could be opened up by building roads to feed the railways, while the fact that at present all the American cotton is collected from about 90 miles of railway suggests greatly increased production if new lines are planned so as to tap the most promising areas.

An acknowledged difficulty is the fact that many of these areas are at present very sparsely populated, and last year the Empire Cotton Growing Corporation submitted for the consideration of the Nigerian Government a scheme for the formation of cotton colonies in suitably selected places. The difficulties of moving a native population are admittedly great, and the local Government ultimately decided that the suggestion was not at

present feasible. The initial cost of the scheme would have been borne by the Corporation, but of course a scheme of land settlement must ultimately be self-supporting, and of this prospect the Government had grave doubts. The same result may, however, be obtained when railways and roads are carried through some of the districts in which cotton production holds out the greatest possibilities, and any steps that secured such a redistribution of the population could not fail to benefit all kinds of agriculture, since the land surrounding the old cities, in which the population is now largely concentrated, is becoming less productive through centuries of cultivation.

Another direction in which the Government can assist in the development of the country generally, and of cotton production in particular, is by an enquiry into its possibilities for irrigation. All the cotton grown at present is dependent on suitable rainfall, and short crops are due as a rule chiefly to semi-failure of late or early rains. If suitable projects can be framed for utilizing by means of irrigation the Kaduna River for the benefit of the cotton fields to the south of Zaria, and the River Niger to develop the possibilities of cotton production in the neighbourhood of Yelwa in Kontagora Province, a greatly enhanced export of cotton may be expected from the Protectorate. It is announced that the Government have engaged the services of one of the senior engineers in the Irrigation Department of South Africa to prepare a comprehensive report, and if the result is favourable, important developments will be rendered possible. The Agricultural Department is intensely active in all matters that may lead to the prosperity of the natives, and may confidently be relied on to press forward any practical propositions to this end.

### Sierra Leone.

Attempts were made by the British Cotton Growing Association from 1901-07 to establish cotton-growing in Sierra Leone, but without success. The Governor is, however, anxious to make a further attempt in other parts of the Protectorate, since it is now considered that the former experiments failed by reason of the site selected for them having been unsuitable climatically. The places now proposed are almost entirely lacking in transport facilities, and, even if the soil and climate prove favourable for the cultivation of cotton of good quality, the success of the venture will be contingent upon either the provision of some form of transport or on the growers being willing to carry their produce a long distance. The best native cotton grown at present, which is extensively used in native manufactures, has a staple of about 1 in. in length, and the ultimate success of the proposed experiments would seem to depend largely, therefore, upon whether an exotic variety, such as Allen's long staple, which is now established in Nigeria, can be introduced in place of the native variety. Seed has been imported from Nigeria with this object, and selection work is also being done with the native cottons in the hope of obtaining a longer staple. Samples of this type recently received from Sierra Leone have been favourably reported on by brokers.

### British West Indies.

These islands are now practically the only source of supply of Sea Island cotton. In spite of this monopoly, however, the industry has been passing through a most critical time during the last few years. Sea Island cotton, on account of its fineness and length of staple, is used for

lace-making and for the finest cotton fabrics, and the general depression of trade in Europe has caused demand to be curtailed to a point which does not permit of the consumption of the crop, while prices have necessarily dropped to a level which has caused serious discouragement to the growers. British manufacturers have done their best to help by buying and carrying stocks for two or three years which can only very gradually be put into consumption, but the price has risen slightly this year with the general hardening of the market, and it is hoped that a revival in trade will stimulate consumption sufficiently to reduce the surplus stocks. The Imperial Department of Agriculture for the West Indies has been considering whether it may not in the future become desirable to introduce other types of cotton into certain of the islands, with a view to breeding long-stapled varieties, which would find a less specialized application than Sea Island and thus command a wider market.

At the end of 1920 the pink boll-worm made its appearance in Barbados, and has since spread to most of the other cotton-growing islands. This pest has naturally reduced the yields and unfortunately added to the difficulties of the growers. The Department of Agriculture has taken all possible means to mitigate the damage, and legislation has been enacted requiring close seasons in all the islands during which no cotton is grown, while seed is subjected to disinfection wherever facilities exist. On the whole, thanks to the steps that have been taken, the damage to the crop in most of the islands, while still severe, has not assumed alarming proportions.

The Corporation recognize fully the importance of preserving the qualities of Sea Island cotton, and for the past four years they have maintained a small experiment station on St. Vincent in the charge of a well-qualified research worker, who has devoted his whole time to the study of problems connected with the genetics of cotton and the production of improved types, so that this variety may retain its unique qualities in readiness for any revival in the demand.

Reference has been made already to the support given to the Imperial College of Tropical Agriculture at Trinidad, and the value which the Corporation attach to the work that it is capable of doing in giving a good grounding to men who intend to carry on agricultural work in any of the tropical parts of the British Empire.

#### **British Guiana.**

Between the years 1823 and 1828 quite an appreciable quantity of cotton was exported from British Guiana. This cotton was short in staple and was grown on the coast from a perennial type resembling the present-day Brazilian cotton. The disappearance of the industry seems to have been caused by scarcity of labour and the competition of the sugar crop. Trials were conducted by the Agricultural Department during a number of years with cotton of the Sea Island and Egyptian types, which were found to be unsuitable to local conditions, the soil being generally too heavy and the crop damaged by rain during the ripening stage. Types of cotton suited to the country were evolved by crossing Sea Island and Egyptian cottons with the indigenous tree cottons, but scarcity of labour prevented the planters and farmers from taking up this crop. It seems possible that when labour becomes more plentiful in British Guiana cotton growing may once more become an industry of importance both on the front lands bordering on the coast and on tracks inland where the soil

is found to be suitable. It is possible that in the near future arrangements may be made for the immigration of East Indian peasants into Guiana from some of the overcrowded areas in British India.

#### Ceylon.

A little cotton has been grown in Ceylon for many years, but when prices were low tea and rubber were found to be more profitable. With the incentive provided by the rise in the price of cotton, however, the well-organized and efficient Department of Agriculture have, in the last few seasons, carried out carefully planned experiments on cotton production at Ambalantota in the south-east of the island. These experiments have had as their objects the determination of the relative yields per acre of different varieties, the cost of production and the value of manuring. The varieties selected for peasant cultivation are Cambodia, Durango and an American Upland type grown from seed supplied from South Africa. A scheme was worked out for encouraging cultivation in one-acre plots, and in 1923 applications were received for seed to plant 1,648 acres. The whole crop has hitherto been sold by the peasants in the first instance to the Government at a guaranteed price, and the total output is absorbed by the Colombo Weaving and Spinning Mills, who have again this season offered to buy the whole crop at Rs.21 per cwt. of seed cotton for Cambodia and Rs.25 per cwt. for American Upland. The yield per acre in the experiments conducted by the Agricultural Department was promising, and the quality of the samples that were sent to the Empire Cotton Growing Corporation was satisfactory. Nevertheless, it is doubtful if Ceylon is likely to be able to produce cotton in any very large quantities.

The area of the island which has a climate really well suited to cotton, with practically no risk of unseasonable rain about April, just as the bolls are ripening, is confined to the Manaar district in the north-west, and to a strip along the east and south-east coast where there is at present no available population, except about Mullaitivu, Trincomali, Batticaloa and Hambantota. Important railway extensions are now under construction linking up both Trincomali and Batticaloa with the main line, and the Governor is hopeful that the area through which the new lines will run may prove suitable to cotton-growing on an extensive scale. It is to be feared, however, that much of this country, except that which lies immediately behind the coast, will be found to be liable to excessive rainfall in April, and in any case movement of new population into these admittedly malarious districts may be slow. However, at the Governor's request the Corporation are endeavouring to arrange for the loan of the services of a well-qualified expert for the purpose of a short tour in the country, in order that its possibilities may be more fully gauged. The Government are anxious to encourage cotton cultivation in every possible way.

#### Iraq (Mandated).

While the Turks were still in Bagdad the possibilities of Iraq (Mesopotamia) as a cotton-growing country were being investigated. As soon as conditions permitted, experiments were set on foot to determine which variety of cotton was best suited to the climate and the soil, and the subsequent history of cotton cultivation in the country up to the present time is a record of careful scientific work carried out under most adverse and discouraging conditions. Altogether some 30 different varieties have been tested, and nearly every year some unexpected disaster has

overtaken at least a part of the experimental crop. One year it was destroyed by locusts ; another year by shell fire during the Arab rising ; a third year much of the area planted yielded practically no harvest owing to water shortage. However, the Agricultural Department and the British Cotton Growing Association have persevered, and it is most gratifying to know that, as a result of the experiments of the former body and the steady encouragement afforded to the industry by the prices offered by the latter, the 1923 crop amounts to practically 1,000 bales of 400 lbs. The type of cotton from which these thousand bales have originated is a long-stapled American Upland. Since its importation into Iraq, it has shown a modification of some of its original characters and may now be accurately said to be a separate type. The name of Mesowhite has been given to it. The cotton industry has this great point in its favour in Iraq ; only one kind of seed is distributed by the Agricultural Department, so that the cotton that results as the acreage increases should be unmixed and uniform in character. The two chief things that are needed for the development of the industry are political tranquillity and adequate water control. The country has already benefited from the generous policy adopted by the British Cotton Growing Association in maintaining prices when the market was low, and this farsighted action has undoubtedly contributed largely to the successful establishment of the industry.

#### Cyprus.

Cotton has been grown for some centuries and is still one of the most important products of the island. The native species is *Gossypium herbaceum*, but this has been largely replaced by *Gossypium barbadense* during the past 25 years. The former is grown without irrigation—a method known as "dry" cultivation—and is not exported. Several varieties of American cotton have been grown both "wet" (irrigated) and "dry," and good results have been obtained. About 700 tons of American seed were sown in 1922. For several reasons very little Cyprus cotton has ever been shipped to Great Britain. In the first place, freight rates to England are much heavier than to either Marseilles or Trieste ; secondly, Marseilles is prepared to take quite small consignments which do not appeal to Liverpool ; and thirdly, the French factories do not make such a feature of uniformity of type. The merchants of Cyprus are scarcely competent to distinguish between the several varieties grown, and the bales usually contain a mixture. Since the war the greater part of the cotton has been shipped to Greece, where it is readily taken up. In Liverpool, Cyprus cotton has recently been valued at about 50 points off middling American.

#### Malta.

Cotton is grown on a small scale, but entirely under rainfall conditions. This being so, the acreage varies according to the storage of moisture in the soil during the rainy season. The varieties grown are chiefly Maltese cotton, which has been grown on the island from very early times, and Levant, or Gallipoli, cotton ; both are short-stapled. The production in 1922-23 was 193 bales of 400 lbs. It is, however, actually exported in large bags of variable weight. Its destinations are Great Britain, Italy, Beyrouth and Greece.

#### Fiji.

Between the years 1864 and 1884 the annual export of cotton for Fiji

exceeded 1,000 bales of 400 lbs. Gradually the acreage under this crop dwindled until it ceased to be grown in 1900. In 1920 attempts were made to revive the industry, and arrangements were made to import a supply of seed from the West Indies. While this seed was in transit, however, an outbreak of pink boll-worm was discovered in the islands from which the seed had been despatched. It was accordingly destroyed before it reached Fiji. In 1922 the presence of pink boll-worm was discovered in Viti Levu. The Planters' Association of Fiji have asked whether it would be possible for Mr. Evans, the Corporation's Cotton Specialist in Queensland, to visit Fiji to advise the planters regarding the possibility of restarting the growing of cotton. The Corporation have replied that the Government of Queensland have the first call on Mr. Evans' services, but that, should they be willing to allow him to visit Fiji and consider that such a visit could be made without detriment to his work in Queensland, the Corporation would be willing to discuss arrangements with the Government of Fiji. The Planters' Association have, therefore, requested the Government of Fiji to ascertain from the Queensland Government their views on the matter.

#### Papua.

Small quantities of Sea Island cotton have been grown in the past in this island, but little progress was made, and the Company that undertook the experiment were not allowed to employ casual labour for picking. In 1921 the newly-appointed Instructor of Native Plantations wrote to the Empire Cotton Growing Committee of the Board of Trade stating that he had had experience of cotton in the American Cotton Belt, and asking whether the Committee would be prepared to provide ginning machinery and to subsidize the industry for the first few years. He stated that it had been proved that cotton would grow and that he had arranged with the Queensland Government that he should be provided with seed. The Committee obtained for him at his request a small quantity of selected Sea Island seed from Barbados, and in their reply stated that the Corporation had still to be established. Reports have been asked for regarding the experiments which it was proposed to carry out, but so far these have not been received. Until experiments have been undertaken in Papua to ascertain whether or not cotton can be grown there on a commercial basis, and until brokers' reports and spinning tests have been obtained regarding the quality of the lint produced, it is impossible to say whether this country is capable of adding its quota to the world's supply of cotton.

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## Cotton Growing in Argentine.

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According to the Director-General of Rural Economy and Statistics of the Ministry of Agriculture, 154,800 acres were sown under cotton in 1923-24, as compared with 56,500 acres. The Chaco District is the most important, having this year a cotton acreage of 123,550, and conditions promise a good crop. Corrientes has a cotton acreage of 21,370, and the crop there is also in good condition.

Picking extends from February to August, and this year a record crop is expected owing to the large acreage planted. Most of this cotton is sold to Germany, though latterly some has been bought by Manchester merchants.

## Cotton in Asia Minor.

*By HUSNI, SONS & CHINASSI, Adana, Turkey.*

SINCE the last report presented to the International Federation on cotton growing in the Vilayet of Adana by the Deutch-Levantinische Baumwoll Gesellschaft, many tragic events have happened, which, though they are likely to be of very great interest to the future historian, cannot directly have favoured the growth of cotton cultivation. It will be useful to review these events briefly from the point of view of cotton cultivation.

The outbreak of the Great War, and the immediate crisis it brought on the cotton industry and trade of the world, could not fail to affect the cotton growers in this district. The crop had been a very large one for the district, but prices had fallen very low, there was a great scarcity of labour owing to the mobilization of the army, so that farmers found themselves faced with very great difficulties. During the years of war that followed, the scarcity of labour, the difficulties of communication, the lack of intercourse with the Western World, and the prevailing political uncertainty, upset the economic system of the district. The cultivation of cotton naturally suffered a severe check. As is shown in the following table, while the crop of 1914 is estimated to have amounted to 135,000 bales of 200 kg., the crop of 1917, for example, is estimated to have amounted to 15,000 bales.

### PRODUCTION OF COTTON IN THE ADANA DISTRICT.

(In bales of 200 kg., with a probable error of 10 per cent.).

	Bales		Bales
1896 ..	2,000	1914 ..	135,000
1903 ..	40,000	1915 ..	15,000
1904 ..	42,000	1916 ..	10,000
1905 ..	43,500	1917 ..	10,000
1906 ..	50,600	1918 ..	15,000
1907 ..	56,000	1919 ..	—
1908 ..	64,000	1920 ..	—
1909 ..	76,100	1921 ..	15,000
1910 ..	45,800	1922 ..	80,000
1911 ..	80,000	1923 ..	80,000
1912 ..	115,000	1924 ..	160,000 (?)
1913 ..	120,000		

The second phase of events since 1914 starts with the armistice and the occupation of the district by the French army in 1919. The disorganization of the economic system of the country reached its apex. Faced with the invasion of their country by a foreign army, the entire Turkish population left their houses, farms and cotton, and retired to the adjoining mountains to defend their fatherland. Such circumstances are not favourable to the cultivation of cotton. In 1921 the French army retired from this district, and with the French army also retired the Greek and Armenian population of the country, who, basing their action on the expectation of a lasting French occupation, had taken an attitude entirely irreconcilable with the innate aspirations of the native population to preserve intact their national independence.

With the end of the French occupation in 1921 starts the third phase of recent events, and the beginning of the return to a normal state of affairs. The recuperation of the country has been surprisingly rapid. During the season 1921-22 the crop of cotton amounted to about 15,000 bales. In 1922-23 it was about 30,000 bales, and in 1923-24 it reached the amount of 80,000 bales, while for the coming season of 1923-24, apart from abnormal weather conditions, it is not too rash to expect a minimum crop of 160,000 bales, as the area sown with cotton is estimated to be between two to three times that of 1923-24. If account is taken of the disorganized state of the country at the end of the French occupation, of the extreme poverty of the farmers who had left their cotton in their fields unpicked and ungathered and retired to the mountains, of the important changes in population, the rapidity of the economic recovery of the country is indeed surprisingly remarkable. The zeal and determination shown by the population in carrying out the work of reconstruction is an encouraging sign as regards the possibilities of future development.

The first and the most fundamental pre-requisite of the full development of cotton cultivation in this district is undoubtedly political tranquillity and peace. What has most hindered in the past the development of cotton cultivation on a much larger scale than it has taken place has been, more than any definite economic or physical factor, the continued state of war and political uncertainty into which the country was plunged. Happily one of the entirely unexpected results of the tragic events briefly described above has been the wholesale solution of many complex political problems. There is, moreover, in the whole country a strong desire to avoid all political entanglements, and to devote the maximum possible effort to economic development. Economic matters are receiving in Turkey, both from the Government and the people, an amount of attention which they have never received before. If progress is not quicker than it actually is, it is not because of the lack of an intense desire to achieve progress, or of a ready disposition to adopt improved methods, but because of the limitation of the available means.

Reports written before the war on cotton cultivation in Asia Minor often complain of the fatalistic trait of the Orientals which forces them to adhere rigorously to old usages. We are not sufficiently acquainted with the peculiar characteristics of the Oriental in general; but the particular characteristic of the population of Adana district is certainly not fatalism. Theoretical argumentation is indeed of little weight; but as soon as the practical utility of a new method is demonstrated it does not fail to receive immediate support. In most cases an improved method which fails to find acceptance is either a method which is beyond the means of the cultivator, or is not profitably applicable on a large scale to local conditions. On the whole it is with a progressive population that we have to deal. Moreover, a very important factor which eases the acceptance of improved methods is the fact that there are in the district many landowners possessing very large cotton plantations up to 10,000 acres who carry on cultivation on a large scale, and are therefore all the more inclined to adopt improved methods of cultivation.

The *area available for cotton* cultivation in the Adana district is estimated to be between 4 and 5 million acres. The yield per acre varies at the present time between a minimum of 200 lbs. per acre, to a maximum of 400 lbs. per acre. If we assume that the present method

of the biennial rotation of crops, i.e., the alternative cultivation in the same field of cotton one year and cereals the following, is continued it means that the area available for cotton cultivation each year is between 2 and 2½ million acres. In other words, under present methods of cultivation the potential supply of cotton in the Adana district is between a minimum of 800,000 bales and a maximum of 2,000,000 bales of 500 lbs.

The way to achieve this increased cultivation is through (1) improved methods of cultivation and in particular the increasing use of machinery ; (2) increased financial facilities to cultivators ; (3) reform in the system of taxation ; (4) improvement in the means of communication. We are glad to report that progress is being achieved in all these directions.

The ancient wooden plough of the cultivator is being increasingly superseded by the mechanical tractor. The introduction of the cheaper mechanical tractor, in particular the cheap Fordson tractor, has encouraged very much the gradual adoption of mechanical methods of ploughing. The large landowner, however, who possesses sufficient means still prefers the deep-ploughing steam plough.

One of the processes that was most in need of improvement was that of sowing. The prevalent method of broadcast sowing by hand not only uses a large labour supply, but is also wasteful of much valuable seed. Amongst others, M. Bayeux, a Belgian specialist who has had large experience in the United States and the Belgian Congo, and is now managing a farm near Adana hired by a Belgian Syndicate, has introduced the Deering Planter and applied the system of sowing in straight lines. Extremely favourable results appear to have been thus reached, and the rapid expansion of the method can be reasonably forecasted.

The application of the system of sowing on straight lines also renders possible the use of instruments to remove mechanically the weeds from the fields. The process is now carried on by the use of a small hand instrument. It is one of the most expensive processes and requires a large amount of labour supply. The application of more mechanical methods to carry out this process will save a good deal of labour and expense.

The invention of a suitable picking or gathering machine would render possible the production of cotton on an almost entirely mechanical basis. The invention of such a machine is a much simpler matter for the cotton grown in Asia Minor than for American cotton. The greatest difficulty that has baffled hitherto all attempts to devise a mechanical picker suitable for American cotton is that this cotton does not mature all at once, and therefore cannot be picked in one operation. It is necessary to find a machine which will discriminate between mature and immature bolls, pick the mature bolls, leave the unopen bolls, and not injure the plant. This difficulty does not exist in the case of Asia Minor cotton, as the crop matures all at once and can be picked in one operation. The bolls even when fully ripe still adhere to the plant, so that it is usual to gather the crop in one operation after all the bolls are ripe. The greatest difficulty, therefore, that stands in the way of the invention of a suitable cotton picking machine in the United States does not exist in the case of Asia Minor cotton.

The increasing application of the mechanical methods of cultivation is likely not only to diminish the cost of production of cotton, and to increase the yield per acre, but it would also solve the otherwise insoluble problem of labour supply. The present population of the Vilayet of

Adana is estimated to be between 350,000 and 400,000 inhabitants. With the present methods of cultivation the available labour is not sufficient to secure the full development of cotton cultivation. Suggestions have been made to secure the seasonal immigration of labour from Egypt. As wages are much lower in Egypt and the supply of labour very abundant, this suggestion may not be as impracticable as it appears at first sight. Nevertheless, the increasing use of agricultural machinery is the ideal solution of the problem of the scarcity of labour.

We are glad to state that the Government is facilitating in every way possible the introduction of mechanical methods. The importation of agricultural machinery has been freed of all import duty, and the custom formalities reduced to a minimum. The School of Agriculture in Adana is being reformed; greater attention will be paid to problems connected with the cultivation of cotton, and demonstrations of the use of machinery carried out. The Director of Agriculture of the Vilayet of Adana is paying a two years' visit of investigation to the United States to report on the methods employed in the cultivation of cotton, and an American specialist will be engaged for demonstration and teaching work in the School of Agriculture. Further, an International Agricultural Exhibition will shortly take place in Adana which should very much help the introduction and sale of machinery. The result of this exhibition will be very interesting.

As regards financial help to the cultivator, much remains to be done in this respect. A step in the right direction has been taken by the Government by the reform of the Agricultural Bank. The present organization, however, is in no way sufficient. Much remains to be done by private organization in the shape of short-period advances to cultivators, not to mention long-period advances for improvement purposes.

A good deal has to be done in the way of the construction of satisfactory roads. At present there are very few good roads in the Adana district. In particular, during the rainy winter season communication becomes a very difficult matter. Happily in this connection also the Government is acting very energetically, and many new roads are being constructed, as well as old ones repaired.

We are also glad to report that there is a strong movement for the suppression of the "temetu" tax, which is a uniform tax of  $12\frac{1}{2}$  per cent. on agricultural produce levied in kind. In its practical application the tax produces a large amount of discontent, and is very discouraging to the farmer. One can definitely hope that it will not be long before this system of taxation is suppressed. A tax on land which is likely to be substituted for the "temetu," if it judiciously discriminates between cultivated and uncultivated land, is likely to be one of the most effective means of increasing the cultivated area.

A problem which is of no less importance than the increase of the area under cultivation is the improvement of the quality of cotton grown, and in this connection the questions of seed selection and the adoption of new and improved varieties of cotton are of importance.

There are two main varieties of cotton grown at the present time, viz., the native variety, or, as it is called, "Yerli" cotton, forming 95 to 98 per cent. of the crop, and the "Iané" cotton, which is a hybridized Upland American variety. The native variety has a length of staple between  $\frac{3}{8}$  in. to an inch. It is of a slightly creamy white colour, a little rough and woolly, but gives a full feel. The Iané or American variety

is of a length of staple from  $\frac{3}{8}$  in. to  $1\frac{1}{8}$  in.; it is white in colour, bright and lustrous and soft, very much like an Upland American variety. It is difficult to state exactly the amount of this variety of cotton grown, but as a rough guess we would estimate it to be something approaching four to five thousand bales.

The work of seed selection has not hitherto been systematically carried out in Asia Minor. Some few cultivators undertook a process of private selection, but this was neither systematic nor on a sufficiently large scale. The matter, however, is receiving the attention of the Government, and the American specialist who will be engaged to advise and demonstrate on matters connected with the cultivation of cotton will also direct the carrying-out of systematic seed selection. Moreover, M. Bayeaux, whom we have already mentioned, is carrying out a very scientific process of cultivation, and many other large cultivators are now following his example. By selecting the bolls of plants that thrive well under the worst conditions, M. Bayeux hopes to obtain a variety that will give the best results under prevailing local conditions.

The problem of the introduction of new varieties of cotton is sometimes discussed as if it were a mere question of the transportation of seeds. There can be no more mistaken point of view. The American Upland variety of cotton—the Iané cotton—grown in this district is certainly far more valuable than the native variety, and at the same time gives a better yield per acre as well as having a shorter period of growth. If its cultivation is on a very limited scale it would be a very great mistake to attribute this merely to the conservative proclivities of the native cultivator. It is rather because the native variety has undeniable growing advantages under existing conditions that its cultivation is maintained. It would be useful to state briefly what these advantages are :

1. Even when ripe the bolls do not open widely and fall off from the plant. They continue to adhere firmly to the plant and thus form a very good protection against rain and dust. A rain during the picking season is, therefore, relatively harmless as compared with a rain during the same period in the United States.
2. The gathering of cotton can be done in one operation, and gradually, according to the amount of the labour supply available. This means a very great saving of labour.
3. The fact that the gathering of the cotton can be done in one operation increases the possibility of the invention of a suitable picking machine.
4. The native variety requires a comparatively small amount of moisture and heat. It can therefore thrive normally without irrigation. Moreover, the fact that it requires a comparatively small amount of heat enables its cultivation on higher altitudes than would otherwise be possible. In this way the area under cultivation is extended.

In reality the successful introduction of foreign varieties requires careful study and investigation. Apart from the necessity of guarding against insect pests and diseases, which happily are not of importance at the present time in this district, it is necessary to study carefully the local conditions and compare these with the conditions prevailing in the country from which the variety is being introduced. The successful adaptation of foreign varieties and their hybridization with native varieties

can be carried out only as a result of careful scientific observation. Of the varieties introduced hitherto the best results have been obtained from seed imported from Turkestan before the war. This variety resembles the native cotton inasmuch as it is gathered in the field and its bolls adhere to the plant even when ripe. It has a better staple-length, it is silkier, more lustrous, much finer, and gives a higher yield than the native variety. All cultivators who planted this seed speak very highly of this variety and express the highest satisfaction. Egyptian varieties introduced have not given very good results owing to their longer period of growth and their greater need of moisture and heat than the native variety. Of American varieties the Upland cotton, which we have already mentioned, has the advantage of having a period of growth shorter even than that of the native variety, and appears to suit very much the climate of the country. It is only the difficulty of picking that stands in the way of the rapid extension of its cultivation.

We gladly take this opportunity to thank the British Cotton Growing Association and the Delta and Pine Land Company of Mississippi for having very kindly given us samples of some of the best varieties of seed.

It will, of course, be possible to regard the question of the introduction of new varieties from a different point of view, if a system of artificial irrigation is carried out. Some preliminary investigations were carried out before and during the war by the Government, but these did not go very far. We are glad to state that the Government is renewing these preliminary investigations. As a result of an observation relating to a period of 22 years made by Government officials, the average yearly rainfall, spread over a period of 45 days, is stated to amount to 583.5 mm. at Tarsous. Although this average rainfall is sufficient for the growth of cotton, there are years of drought which give much anxiety to cultivators. The work of irrigation is estimated to require an expenditure of four to five millions sterling. When it is carried out the growth of long-staple cotton will become a practical possibility.

The question of the commercial handling and preparation of the crop has received our careful consideration. At the present time the seed cotton is separated from the capsules in private houses by hand, and during this and the subsequent process of ginning a good deal of dirt gets mixed with the cotton. The attempts made to separate the hulls mechanically have not hitherto given satisfactory results, but we hope that the machinery we have had constructed will solve the problem. We are erecting a large ginnery in Adana, with all the latest and best machinery invented, and we hope that the cotton we shall be able to offer during the coming season will be far superior to any Asia Minor cotton placed up to now in the market in the matter of grade as well as the regularity of staple. It is also our earnest hope that the baling and pressing of the cotton will leave nothing to be desired.

Writing in 1908, Prof. W. Dunstan stated : " In any forecast of the future of the cotton production of the world the possibilities of Asia Minor must be taken into account." This statement still holds good. Moreover, Asia Minor is a field from which not one country alone but all countries can draw their supplies. The attempts made to monopolize the supply of Asia Minor cotton for the benefit of any one country might have been successful to a certain extent before the war, but they are not likely to achieve any success at the present time.

## Cotton Growing in China

*Answers by T. S. Kuo, head of the Agricultural Department and Chairman of the Cotton Improvement and Extension Committee, Nanking, to the questionnaire of the International Cotton Federation.*

(1) *What is the area at present under cotton?*

In China the total area at present under cotton, according to the 1922 report of the Chinese Cotton Mill Owners' Association, is 33,464,595 Chinese mows or 5,577,432 English acres. The 1923 report of the Association is now in the press, and will give still better information in this connection than the 1922 report. The cotton area of the 10 cotton-growing Provinces for four years is tabulated in the following:

	Cotton Area (Mow or about $\frac{1}{3}$ acre)		
	1919	1920	1921
Chihli .. ..	6,397,000	4,391,082	4,709,963
Shantung .. ..	3,218,000	482,880	2,333,190
Shansi .. ..	486,820	613,240	603,025
Honan .. ..	1,417,634	—	856,000
Shensi .. ..	—	1,288,650	2,405,910
Kiangsu .. ..	19,278,307	12,474,700	11,812,600
Chekiang .. ..	—	1,270,100	1,199,000
Anhwa .. ..	762,000	1,195,695	1,098,000
Kiangsi .. ..	—	898,850	256,650
Hupeh .. ..	—	6,269,700	2,849,100
Total .. ..	31,559,881	28,827,297	28,216,488
			83,464,395

(2) *What areas can be used for cotton in the future?*

In South China, where population is quite dense, the cotton area cannot be extended without difficulty, but in the Provinces of the North such as Chihli, Honan, Shantung and in parts of Northern Kiangsu, like Tsing-tau, Hai-chow, etc., the cotton area can be largely extended. Again, in Hunan, Szechwan, Kwei-chow and Shensi extensive areas at present unfortunately covered by opium crops could be profitably used for growing cotton. If there are strong organizations to lead the work of extending the cotton area in China, then it would not be hard to increase by four or five million mows the cotton land within the next four or five years.

The yield per mow of the average cotton field in China is much lower than that obtained on the experiment stations; this shows that if the methods of cultivation are improved and superior varieties are sown the production would be much greater.

(3) *What kinds of cotton are grown?*

(a) Annual American, what percentage?

(b) Perennial tree cotton, what percentage?

The perennial tree cotton is of no significance in this country and

in reality it is rarely found here. The only kinds of cotton of great economic and commercial importance are the annual Chinese and the Upland American. According to the report of the Chinese Cotton Mill Owners' Association at Shanghai, the total production of cotton fibre in 1922 was 8,310,355 piculs, of which seven-eighths was Chinese and one-eighth American, or 87 per cent. and 13 per cent. respectively.

(4) *What is the time of planting?*

The time of planting varies from April 15 to May 15.

(5) *What is the time of picking?*

The picking season begins as early as the end of August and lasts as late as the beginning of November.

(6) *Labour conditions. What is the density of population in the cotton zone?*

In each Province of South China the density of population is very great, while in each Province of the North it is medium.

(7) *What is the average crop of cotton (ginned) in your country?*

The average crop of cotton (ginned) of four years (1919-22) in China is 7,453,842 piculs (each picul being equal to about 130 lbs.).

(8) *What is the average yield of lint cotton (i.e., fibre after separating from the seed) per acre in lbs.?*

The average yield of lint cotton per mow is about 24 catties (10 lbs. equals 1 catty) in the ordinary cotton field, or about 200 lbs. per acre. But in the experimental field, where improved seeds and cultivation methods were used, the yield was much greater.

(9) *At what average price can the best cotton land be bought in your country?*

The price for one acre of cotton land in the South, which is usually more fertile, varies from \$240 to \$600 (Mexican). In the North the price varies from \$180 to \$300. The newly broken land can be bought at a much cheaper price, which usually varies from \$60 to \$120.

(10) *What is the cost of cotton production per kilo or per lb. English, expressed in English currency? What agricultural wages are paid, expressed in English currency?*

The cost of production per English lb. varies with locality and yield. Generally speaking, each lb. costs, on an average, about \$0.2 to \$0.6 (Mex.) or 5.15d. (English currency).

The wages paid to the labourers are very low. At most 100 Mexican dollars are paid to a labourer each year, including board. The lowest wage per year is 70 dollars a year. Expressed in English currency, the figures are about 10 and 7 English pounds (£) respectively.

(11) *What are the means of transport? State cost from plantation to seaport.*

Cotton produced in the inland regions must be first transported to the local markets with load wagons drawn by animals or by men. There it is packed to be sent to large cities or ports. Trains or steamers will then carry the packed goods to the different parts of the country or to other countries. The cost from plantation to seaport, including tax, varies from \$2.0 to \$10.0 (Mexican) for each picul of cotton, or 4s. to 20s. for every 130 lbs.

(12) *What system of ginning machinery is in use? Saw gins or roller gins? State number of ginning factories.*

Roller gins are mostly used here. There are many ginning factories in the cotton regions. The exact number is not known.

(13) *To what density are the bales pressed and what is their weight? What make of presses are in use?*

No proper answer can be given to this question.

(14) *Is the Government of your Republic willing to support cotton growing by means of special concessions, and what form would they take?*

The Chinese Government is very willing to encourage the cotton improvement and extension work in China, but owing to militarism its attention to this work has not been greatly centralized. The cotton experimental stations established here and there by the Government also have not shown very notable results on account of lack of funds and staff. The first thing to do now in promoting this work is, as it seems to me, to execute completely the plan submitted by this College for the improvement of the cotton industry of the whole country. To carry on this work, a yearly expense of about \$100,000 (Mexican) will be enough at the beginning. This College has very recently taken a united action with the Chinese Cotton Mill Owners' Association and Cotton Merchants' Association to make a petition to the Central Government at Peking for raising funds for this work.

Many Agricultural Reclamation Companies along the sea coasts in Chihli, Shantung, and Kiangsu are unable to develop their work merely because of being short of large capital. If the Government could render assistance to them by increasing their capital they would develop incessantly and cotton growing would become much more extensive.

(15) *Are any export taxes in force on cotton?*

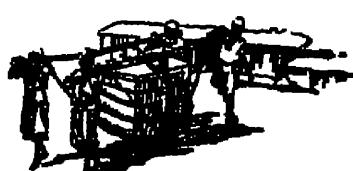
The export tax for each picul of cotton is about 0·35 Hai-kwan Tls. In inland regions the taxation is of a more complicated nature.

(16) *What have the exports of cotton been from your country during the last five years, and what has been the internal consumption?*

During the years 1917-21, the exports of cotton from this country were as follows:

	Piculs		Piculs
1917 ..	830,000	1920 ..	870,000
1918 ..	1,290,000	1921 ..	610,000
1919 ..	1,080,000		

The average internal consumption has been estimated as about 7,000,000 piculs a year.



## Cotton Growing in Colombia

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*By the Colombian Bureau of Information and Trade Propaganda, London.*

THE geographical position of Colombia makes the country an ideal export and distributing centre of raw materials and manufactured products. Furthermore, its wonderful topography gives the country the advantage of successfully growing a great variety of products. Cotton cultivation is one of the most promising industries of Colombia, and its development may be of paramount importance to the textile industry of the world. The country possesses immense territories suitable for its cultivation, but very little efforts have been made to exploit this source of natural wealth.

The establishment of a few weaving factories has given some importance to the industry lately, but as the consumption of these factories is limited, the cultivation of cotton has not received the impulse it deserves. Coffee being the principal industry, every planter gives most of his attention to the cultivation of the coffee, and consequently the development of other crops is very slow.

The country offers excellent prospect for developing cotton cultivation and foreign capitalists will find a good investment for their money in this industry, particularly now that the shortage of cotton throughout the world is so much felt. Till to-day cotton cultivation in Colombia has been carried out only by small farmers on a very reduced scale in each case. No capital at all has been invested for cotton cultivation purposes. Labour is cheap in the country and large tracts of Government land are available.

**ZONES.** Colombia has an area of 462,000 square miles and possesses a temperature varying from 20° F. in the Andes to 100° F. at the coast. In general, cotton grows in regions where the temperature is above 77° F.; in some places it exists as a wild-growing native plant, and in others under primitive cultivation.

*First zone* for cotton cultivation is on the Atlantic coast, where, at present, special attention is being given to cotton growing. The lands on the rivers Magdalena, Sinu and San Jorge offer the most suitable conditions for the development of the plant.

For a considerable distance inland the temperature is between 90° F. and 100° F. the whole of the year. The rainfall is fairly regular and seasonal, and records are available for the last 17 years. The soil is suitable for cotton growing, and large tracts of land are available for cultivation. Labour is cheap and facilities for transport along the Magdalena and tributary rivers are continuously improving, and therefore transport problems offer no difficulties in this part of the country.

Seventy-five per cent. of Colombia's cotton is grown on the Atlantic coast. The whole of this district, including the Departments of *Atlantico*, *Magdalena* and a portion of *Bolivar*, is situated between the ninth and tenth degrees northern latitude, and, both as regards soil and climatic conditions, is admirably suited for the cultivation of long-staple cotton.

*Second zone.* It is on the Atlantic coast, on the *Goajira*, where the best

staple and grade are produced ; the seed cotton is being delivered to the ginneries absolutely free from trash.

*Third zone.* The third zone for future cotton cultivation comprises the lands between *Puerto Berrio* and *Neiva*, along the *Magdalena Valley*, where cotton is grown at present on a very small scale. This tract of country includes the Departments of *Antioquia*, *Santander*, *Tolima*, *Huila*, and a portion of *Boyaca* and *Cundinamarca*. In this part the temperature of 70° F. to 90° F. remains throughout the year almost uniform, and the rainfall is favourable. All the cotton of this territory is of equal characteristics and varies but slightly owing to the natural conditions ; it is a typical Colombian cotton. The kind of cotton spoken of as Antioquian is reputed to be well grown and picked, but the staple is harsher and not quite so regular as those from other sources.

*Fourth zone.* The fourth zone covers *Santander*, *Boyaca* and *Cundinamarca* Departments, where cotton grows already in several districts, especially along the *Suarez*, *Chicamocha*, *Upia*, *Leguia* and other rivers. The eastern plains (*Casanare* and *San Martin*) are also suitable districts, where one of the best indigenous cottons is found. One sample of this cotton was sent to the Imperial Institute, London, and the examination results were quite satisfactory, as will be shown further on.

*Fifth zone.* This is along the *Cauca* and *Patia* valleys and in other districts of the *Valle*, *Cauca* and *Narino* Departments on the Pacific coast. The Cauca Valley offers very attractive conditions and should prove a remunerative investment in those parts of the valley where the soil is well drained and free from floods.

*Characteristics of Colombian cotton.* The plant is perennial and will grow for an indefinite number of years, subject to diseases and old age. This is attributable to two causes : its natural characteristics and to the absence of frost in the country. In the first year of its growth the plant is similar to the American variety in respect to its main stem and branches, and attains a height of about four or five feet. The leaves fall off annually, due to the dryness of the season ; the branches remain and sprout again in the following rainy season. In succeeding years, if left to nature, the plant forms a dense bush, increasing in height and in girth, but never forming a tree in so far as the main stem does not materially thicken annually ; the height may reach 15 feet and the bush attains a diameter of two to three yards. Under cultivation the plant is pruned back after the picking season to within nine or twelve inches of the ground, and although during succeeding years the bush will increase in height and in girth, these will seldom exceed ten feet and four feet respectively.

Almost every sample of Colombian cotton will contain a small percentage of cotton of a chocolate brown shade. In ginned samples the tinge is lost in the greater bulk of the usual cream shade ; in seed cotton the bolls of brown cotton are very noticeable and will vary in quantity in each lot.

**THE STAPLE.** As in all growths of cotton, the length of staple varies according to the season and the local conditions during the growing period. The longest staples of Colombian cotton will pull  $1\frac{1}{2}$  to  $1\frac{5}{8}$  inches, and the lowest sample will not come short of  $1\frac{1}{16}$  to  $1\frac{1}{8}$  inches. In feel it is slightly harsh, but not as harsh as rough Peruvian, and the drier the season of growth the harsher the feel appears to be. The feel of the cotton from different districts will also vary slightly : thus the

Goajira cotton pulls and feels similar to Sea Island cotton ; it is clean, creamy, soft and lustrous ; next to this is the staple grown on the delta at the mouth of the Magdalena, especially in the vicinity of Remolino, this is shorter in staple,  $1\frac{3}{16}$  to  $1\frac{1}{4}$  inches, and somewhat harsher, but it is a good and regular cotton. The Antioquian cotton bears much resemblance to this. The worst cotton is grown on the west bank of the Magdalena River. Here the soil is calcareous and sandy and of volcanic origin in great part. The ground is higher and not subject to the river's influence as on the east bank of the river. The soil is not so fertile and it is not uncommon to see fields deserted after two years' cotton growing, with old cotton standing uncultivated and running to decay, while fresh ground in the neighbourhood has been cleared for new crops.

*Spinning qualities.* Colombian cotton is easy to spin, produces a much stronger yarn than Upland American cotton, and if picked clean the waste in opening and carding is less than that usual in spinning middling inch-staple American. Colombian cotton is fine and long and it is a superior fibre for spinning. The only fault which spinners find with Colombian cotton is the amount of trash that the majority of native cotton has hitherto contained.

*Varieties of Colombian cotton.* The cotton plant, like all the vegetable species cultivated by man, has multiplied in types and varieties more or less select and removed from the original.

The variety *Pajarito*, which grows throughout the country as an indigenous one, has generally the same physical characteristics and, nevertheless, in some regions it is not perennial and its development is less exuberant than in others. It is the only type of short fibre in Colombia ; it grows spontaneously in all the warm zones, producing abundant crops almost permanently since it flowers continuously ; along with other wild plants it has great resistance and stands well the heat as well as diseases and insects. Its fibre is smooth and brilliant, of a white colour, and is generally well accepted in the spinning factories.

*Common cotton* is a variety of long fibre cultivated in various parts of the country, especially in Santander, Boyaca and Antioquia, where the production reaches satisfactory figures. It is certainly the *Gossypium herbaceum* of Linneus, known extensively throughout America, and the origin of the local varieties is indicated by the name of the respective region.

*Creole cotton*, cultivated in the colder climates and presenting the characteristics of the former, but a little degenerated through the influence of the climate. The production is very limited at present.

*Kidney cotton.* A very vigorous plant with luxuriant foliage, flowers early, and resists drought and pests. Nevertheless the production is limited, and up to the present it has not been specially cultivated, notwithstanding the advantages which could be obtained by a careful selection of seed. The seed kernels have the peculiarity of being firmly stuck together, forming a compact nucleus of eight or ten. This arrangement of the seed greatly simplifies the work of separation of the lint, and in large plantations of kidney cotton it would be possible to use simple methods for removing the fibre.

*Boyaca or Legupa cotton.* This type is doubtless the best one grown in Colombia. The fibre has an average length of  $1\cdot 1$  inch and the pro-

duction of each plant is so abundant that during the crop the fields appear to be covered with snow.

This cotton constitutes a select variety and samples sent to Manchester attracted the attention of dry goods manufacturers, who considered it the best raw product to manufacture lace. The Legupa cotton also grows well in the south of Santander and is consumed by the factories of Suaita and Samaca.

The following were the results of an analysis by the Imperial Institute, London :

	Number of mark and weight of sample	Boyaca seed cotton (white).
Description	.. .. .. ..	Weight, 2 oz.
Lint	.. .. .. ..	Unginned cotton.
Seed	.. .. .. ..	Moderately harsh, lustrous, clean, and varying from cream to pale brown in colour. The yield lint on ginning was 45 per cent.
Strength	.. .. .. ..	Brown seeds, covered with pale brown fuzz.
Length of fibres	.. .. .. ..	Very good.
Commercial valuation	.. .. .. ..	From 0·7 to 1·4 in.; mostly from 1·0 to 1·2 in., with an average of 1·1 in.
Remarks	.. .. .. ..	The cotton was valued in Liverpool at nominally 50d. per lb. with middling American (June "Futures") at 24·6d. per lb.
		This cotton was of excellent strength and good quality, and would be readily saleable in this country.

*Peru cotton.* It was introduced by the Government in 1908, which distributed a large amount of seed, but the results were not satisfactory. Only a very small quantity was grown, and samples submitted for inspection showed a rough, coarse staple of seven-eighths. The seeds were between a bald and fuzz character, the fuzz showing mostly on the tip of the seed. There is very little of this variety cultivated to-day, as it hardly compares with the common varieties of Colombia.

*Caqueta cotton.* At the National Agricultural Exhibition in 1916 several cottons grown in the Caqueta region were shown and were considered as a new botanical variety. The fibre shows no difference from the ordinary cotton, it being presumed to be the same *Gossipium herbaceum* above noted.

*Simacota cotton.* This is a variety cultivated in the Municipality of Simacota in Santander del Sur. This variety is appreciated as much for the quality of its fibre as for its resistance to drought. Very similar to the "Durango" of Mexico, this variety presents features which distinguish it from those previously mentioned. The plant attains a height of six feet, its shoots deprived of floss are covered with a clear red colour and are more flexible than the ordinary cotton. The foliage is very abundant and appears early; the capsule is long and narrow, and an opening allows the lint to escape slowly, so that the strong winds cannot injure it, as is generally the case with other varieties. Usually there are three lobes or divisions to the boll, and sometimes they occur with four lobes. The seeds are black, sharply pointed and are bald and smooth. The cotton of Simacota forms a special variety among the other textile fibres cultivated in the country.

*"Mono"* cotton. This comes from a distinctive plant that has every characteristic of the cream variety, except the colour of the staple. The length of the staple is also slightly under that of the usual cotton grown under the same conditions, but when mixed with ordinary staples any difference of colour is lost. It has been suggested that this shade is due to a peculiar constitution of the soil; this is not so, for the plants are distinctive. The "mono" plants appear in the fields intermingled with those bearing cream fibres; seeds selected from these plants will continue to produce "mono" cotton when planted in different localities. The plant has a distinct origin, holds to the parent plant type, and if seeds were judiciously selected would produce a valuable addition to the Colombian output of cotton.

Results of the examination of "Mono" cotton from Boyaca at the Imperial Institute:

	Number of mark and weight of sample Boyaca seed cotton (algodon "mono.") Weight 1 oz.					
Lint .. . . . .	The cotton was rather harsh, fairly lustrous, clean, and mostly pale brown or khaki, but partly cream-coloured. The yield of lint on ginning was 43.5 per cent.					
Description .. . . . .	Unginned cotton.					
Seeds .. . . . .	The seeds were dark brown and covered with brown fuzz.					
Strength .. . . . .	Good.					
Length of fibres .. . . . .	From 0.8 to 1.4 in.; mostly from 1 to 1.2 in., with an average of 1.1 in.					
Commercial valuation .. . . . .	The cotton was valued in Liverpool at nominally 86d. per lb. with middling American (June "Futures") at 24.64d. per lb.					
Remarks .. . . . .	This cotton was generally of good quality, but had a dark colour, and would therefore meet with only a small demand in the United Kingdom. It is not advisable to grow this cotton on a large scale for export.					

*Sacellarides, Mitafii and Nubari cottons.* The first and second crop of these Egyptian cottons have proved quite satisfactory, preserving their original characteristics, but later crops generally showed a marked degeneration, a fact that has been frequently noted in all the similar species brought from foreign countries.

*Caravonica cotton.* This new variety, obtained by crossing the Peruvian with the Hawaiian, which attracted world-wide attention, was brought to Colombia but without any practical result, as the plant obtained from seeds soon degenerates and the shoots do not arrive in good condition to be planted.

The Caravonica has lost its interest as its characteristics are not stable and its productibility has been exaggerated. The greatest advantage that this new type of cotton offers is its life of production, as, from tests made with this variety in Queensland, it has been found that more crops are collected than is usual.

*Cotton diseases and pests.* Along with other producing countries, cotton is in Colombia subject to the destruction caused by diseases and

pests. The most dangerous is an insect which, as a worm, attacks the young cotton plants and also the leaves in the old ones. In some places it is possible to find also the *Heliothis varia*, which attacks the flower. But these two insects are not very widely disseminated over the country, and the crops have never suffered too much by them. Another insect which has come to the notice of farmers in the Goajira zone is known as the White Scale *Hemishionaspis minor* (Masks), a destructive one, against which much effort has been directed with the view to its eradication.

There is another disease known as "Fucha," which appears on the leaves in the form of small protuberances and within a short time the plant attacked becomes yellow and dies. This disease seems to have its origin in the conditions of the soil, unable to supply the plant with all mineral substances for its sustenance ; it has been observed in the cotton plantations of Boyaca.

*Cotton cultivation.* The cotton growers in Colombia do not take much care about the preliminary soil preparations before sowing the seed ; they are content with just a light cleaning of the land before sowing. Planting takes place during the first few days of the rainfall months, usually about April, and the plant grows and reaches its normal size with very little attention until the gathering of the crop, 10 months after. Though it is much better to plant again the cotton after the crop is collected, when the old plants should be rooted up and burnt, the growers in Colombia prefer to keep up the same plantation for several consecutive years.

After the crop is collected the unginned cotton is taken to the nearest markets, where it is sold for domestic use or to the buyers for the spinning mills in Colombia. Until a few years ago the cotton seed was used only for sowing, but now oil is extracted from it.

The cotton zones in Colombia generally have a good supply of labour. The average yield of cotton per hectare is 750 kilos (roughly 750 lbs. per acre) and the cost of its cultivation may be calculated as follows :

	\$
Ploughing an hectare .. .. .. .. .. ..	15.00
Cost of 9 lbs. of seed .. .. .. .. .. ..	.50
Cultivation (82 working days) .. .. .. .. .. ..	82.00
Gathering crop (70 working days) .. .. .. .. .. ..	70.00
Pressing and baling, cleaning, removing wool and freight to next market .. .. .. .. .. ..	50.00
	<hr/>
	\$167.50

The average wage for labour in Colombia is \$1.00 per day.

It is generally estimated that a pound of cleaned cotton is at the rate of 1 lb. to each seven trees ; the total production from an hectare (10,000 trees) will be 1.428 lbs. It is evident that this estimate may vary considerably according to localities and circumstances.

In 1915 the crops were estimated at 7,596,605 lbs. and the areas under cultivation at 11,240 acres. The crops during that year were comparatively small. During the last year the area under cultivation has more than doubled, the demand having increased rapidly with the erection of new factories. To-day the production may be well estimated over 16,000,000 lbs.

Colombia does not export cotton, indeed, large quantities have to be imported, as the entire production is being used by the spinning mills and domestic industries. Cotton seed is exported for oil extraction.

There are several cotton mills in the country, some of them as good as the Manchester mills, with machinery imported from Lancashire. The number of looms in operation to-day is approximately 1,600, with an average production of about 36,000 yd., daily. The principal factories are in Barranquilla, Medellin, Bogota, Suaita, Samaca, and new ones are projected in other towns.

There are no taxes in force at present on cotton exported from Colombia.

## Cotton Growing in Belgian Congo.

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(*Answers by La Textile, Ghent, to questionnaire of International Cotton Federation.*)

(1) *Area at present under cotton.*

This year's crop is estimated at 1,200 tons ; native cotton fields yield about 150 kilos per hectare ; area about 8,000 hectares or 20,000 acres. Number of native fields about seven per acre.

(2) *Areas suitable for cotton in the future.*

Area unlimited, but population is scanty in some parts, numerous in the northern districts (Welle). The cotton crop can certainly be increased tenfold and could, perhaps, reach 20,000 tons.

(3) *Kinds of cotton grown.*

American Upland, Triumph Big Boll. Two cotton-breeding stations are at work breeding selections of acclimatized Triumph cotton. No perennial grown. All cotton stalks must be destroyed after picking.

(4) *Time of planting.*

North of the Equator, July ; south of the Equator, December to January.

(5) *Time of picking.*

North of the Equator, December to March ; south of the Equator, May to August.

(6) *Labour conditions.*

Population dense in the Welle district (Northern Congo), scanty elsewhere.

(7) *Average crop of ginned cotton.*

This year's crop estimated at 1,200 tons. Increasing by 200-300 tons yearly.

(8) *Average yield per hectare.*

Ginned or lint cotton per hectare, average of native fields, 150 kilos ; average of good fields, 200 kilos ; highest and exceptional yields, 250 to 300 kilos.

(9) *Average price of best cotton.*

Differs greatly ; has been as low as 30 centimes per kilo of best seed cotton and as high as 1 fr. 50. General average would be about 50 centimes in the native markets.

(10) *Cost of producing cotton. Agricultural wages paid.*

Depending on the cost of carrying by natives ; some cotton is carried six to eight days' march to a market and then 1,000 miles per rail and river steamer to Matadi, where the cotton is shipped to Antwerp. The average distance would be about four days' march and 500 miles of inland transport. Wages vary from 0·50 fr. to 1 fr. for agricultural labourers in places remote from towns and railways. Practically no cotton is grown by white men.

(11) *Means of transport. Cost of same from plantation to seaport.*

Native carriers, motor vans (Welle), canoes, rail, river steamers, tugs and barges. Total average transport cost about 1,000 fr. per ton.

(12) *Insect pests.*

Several ; have done no great harm.

(13) *System of ginning machinery.*

Saw gins. Two 4 x 80 x 12 in. ginneries ; about fifteen 2 x 60 x 12 in. ginneries.

(14) *Density and weight of bales. Makes of presses.*

Low density. 50 to 100 kilos. Bijoli and American steam presses.

(15) *Government support.*

No special concessions are in sight or asked for, the cotton crop being grown entirely by natives in their own fields. The district officers act in favour of cotton growing by distribution of seed, technical assistance given by the Government district agriculturists, and constant advice given to chiefs and headmen on the extension of the cotton fields.

(16) *Export taxes.*

Cotton pays an export tax of 3 per cent. on official value.

(17) *Exports of cotton from the Congo during the last five years.*

	Tons		Tons		
1917	..	20	1921	..	552
1918	..	106	1922	..	980
1919	..	150	1923	..	1,200 (?)
1920	..	865			

(18) *Length of fibre and grade.*

Good average samples, 28 mm. Good middling.

## Cotton Growing in French Colonies.

The "Association Cotonnière Coloniale," 4, rue de la Paix, Paris, submit a detailed statement of the work undertaken, which is too lengthy and arrived too late for publication in this issue; it is hoped to utilize the same in the next issue of the INTERNATIONAL COTTON BULLETIN. Meanwhile we give the following summary:

**PRODUCTION OF COTTON IN THE FRENCH COLONIES IN 1923-24**  
(Cultivation on dry land giving the type of American Good Middling 25-30 mm.)

		Seed Cotton Tons	Cotton Lint Tons	Bales of 200 kilos
<b>FRENCH WEST AFRICA :</b>				
Of which a third is only imported into France, the remainder is used by the natives on their hand looms.	Sudan .. .. Higher Volta .. .. Ivory Coast .. .. French Guinea .. .. Dahomey .. .. Togo .. ..	4,000 1,800 1,300 6/8,000 1,550 2,500	900 500 300 2,000 500 800	4,500 2,500 1,500 10,000 2,500 4,000
	Total .. ..	17/19,000	5,000	25,000
<b>INDO-CHINA :</b>				
The whole of this cotton is used in the country and the extreme Orient Tonkin, China and Japan.	Cambodia .. Tonkin ..	11,000	3,000	15,000
	Total .. ..	11,000	3,000	15,000
<b>OCEANIA :</b>				
The total is exported to France.	New Hebrides .. New Caledonia .. and Archipelago ..	2,000	800	4,000
	Total .. ..	2,000	800	4,000
<b>FRENCH EQUATORIAL AFRICA :</b>				
The total is exported to Europe.	Camerun, Congo .. and others ..	380	100	500
	Total .. ..	380	100	500
<b>MADAGASCAR :</b>				
Exported to France	Total .. ..	200	50	250
<b>GULANA AND WEST INDIES :</b>				
Exported to France	Total .. ..	200	50	250

**GRAND TOTAL .. 0,000 TONS or 45,000 BALES.**

In these quantities are not included the long-staple cottons, Egyptian type, produced on irrigated plantations and various districts of North Africa (Orleansville, etc.), nor those of the Boucle Niger à Diré, near to Timbuctoo (Société de Cultures Cotonnières du Niger). We have not been able to obtain from the latter the exact quantities, but it is evident that very favourable prospects exist.

In 1904, the French Colonies produced less than 2 tons of cotton ; in 1914 this quantity exceeded more than 900 tons and in 1924 it reached 9,000 tons, or 45,000 bales of American type.

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## DISAPPOINTING OUTCOME OF EFFORTS TO PROMOTE COTTON PRODUCTION IN FRENCH INDO-CHINA.

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Export figures of French Indo-China for 1923 indicate that cotton growing there is gradually diminishing in spite of the efforts of the local Government to increase its production, according to consular advices to the United States Department of Commerce. Several missions have been sent out from France to study the possibilities of increasing the acreage with the idea of making investments, but so far without positive results. There exist several factors that discourage cotton cultivation on a large scale. The most important are the following :

It is impossible to increase the present acreage to proportions that would make cultivation commercially interesting. The present area of 40,000 acres devoted to cotton lies along the river banks of the Mekong. This area could be tripled ; but as it is subject to the floods of the river and large areas of crops are washed away every year, the maximum production of 18,000 tons of cotton that could thus be obtained is not felt to be worth the effort and risk.

Other available lands are the jungle highlands, which would have to be irrigated before cotton could be grown. This would necessitate the expenditure of large sums and several years of waiting.

It is thought that cotton can be grown on the highlands without irrigation. However, that would call for entirely different methods of cultivation and a different species of cotton from that now grown. Cotton grown now depends upon the proximity of the river for sub-irrigation and upon the annual floods for fertilizing the ground. The highlands would require a cotton planted shortly before the end of the rainy season, continually cultivated during the dry season and matured before the advent of the next rainy season. This kind of cultivation has never been attempted, but it is presumed that cotton could be so grown.

But the most important factor of all lies in the character of the population. The Cambodian is not fond of work. A family will cultivate only as much of its land as is necessary to produce enough rice, corn and tobacco to keep it until the following year. One American cotton expert said that it would require white foremen who would work directly in the fields with the natives. It has been suggested that natives from French India might be imported.

Lack of interest on the part of French importers contributes largely to the apparent apathy toward Indo-China cotton culture. In spite of the effort of the local Government to attract the attention of the big French buyers, almost the entire crop goes to Japan. Out of the 1923 exports of 1,526,562 kilos, France took 823 kilos. Cotton growing in Indo-China attained its maximum in 1913, when 2,360 tons of raw cotton and 6,040 tons of cleaned cotton were exported.

(*Economic World*, New York, 10th May, 1924.)

## Cotton Growing in Korea (Chosen).

By S. KAMISAKA, Secretary, The Japan Cotton Spinners' Association, Osaka.

IT is a well-known fact that the soil and the climate of Korea are suited for cotton cultivation, and a species belonging to the *Gossypium herbaceum* has been planted all over the land for ages. The quality of the cotton, however being much inferior to most of the foreign species, it is no good for spinning by machinery. Consul Wakamatsu, at Mokpo, an open port in South Zenra Province, was the first man who turned his attention to the trial of growing Upland species in 1904. In view of the fact that the trial rearing resulted in success, some Japanese statesmen and business men interested in the matter advocated that cotton cultivation in Korea would be very promising in future, and it should never be neglected as it is nothing but a part of the general plan for solving the cotton supply problem of Japan to promote its cultivation.

Accordingly the Cotton Growing Association was organized in July, 1905, through the co-operative endeavour of the Japan Cotton Spinners' Association, some leading members of the House of Peers and the House of Representatives, officials in the Department of Agriculture and Commerce and some prominent business men. Mr. Utaro Noda, Mr. Shimpei Tsunoda, Mr. Yutaro Aochi, Mr. Yoshizo Ogino and Mr. Otokichi Shoji (representative of the Japan Cotton Spinners' Association) devoted themselves as the Directors of the Association to the propagation of Upland cotton cultivation and to bring about an increase in the production of superior cotton in Korea. This effort was carried on until March, 1922, when the Association transferred its business to the Governor-General of Chosen (Korea), and the Association was wound up.

According to the trial rearing of Upland species experimented by the experts of the Association, "KING'S IMPROVED" variety among the species was found most suitable for cultivation in South Korea, and its cultivation was propagated widely. At the same time encouragement was given to improve the cultivation of native species in West Korea, and the cotton crops are now of considerable agricultural importance for her.

All this is mostly due to the untiring endeavour of the Cotton Growing Association, and the action was actually carried out by the support of the Japan Cotton Spinners' Association, represented by Mr. Shoji, whose merits were duly recognized by the Japanese Government.

A general idea regarding the scope of activity of the Association is given in the following pages.

It was in the middle part of the fourteenth century when cotton was planted for the first time in Korea. The cultivation soon spread all over the land except in North Kankyo Province, and the area ran up to some 142,000 acres in 1912, when the policy of cultivating "KING'S IMPROVED," a variety of American Upland species, was taken up.

Korean native cotton was exported to Japan for the first time in 1901 and was found worthy of being admixed to a certain extent. Later, in 1904, the trial rearing of Upland cotton, more worthy than native cotton, was commenced in Koka Island, situated just opposite the port of Mokpo,

by Mr. Wakamatsu, Japanese Consul at Mokpo, in order to supply the Japanese cotton industry with a superior material, and it was ascertained that Upland cotton growing was very promising in Korea. Experiments carried out at the Model Plantation Station at Mokpo, established in 1906, proved beyond doubt that the "KING'S IMPROVED" variety among the species was best suited for the country on account of its early maturity, and the seeds were imported from the United States of America, which were distributed among the Korean cultivators under a contract that their products should be bought at a reasonable price by the cotton seed farms which were established by the Korean Government in 1906.

Owing to the fact that there was little mutual understanding between the cultivators and the officials of the seed farms, and also on account of the fact that the seed was not yet acclimatized, the result was not generally so good as was expected, though unfavourable weather conditions were also responsible for this failure. Nevertheless, in view of the satisfactory experiments both at the Mokpo branch of the Model Plantation Station and the seed farms personally superintended by the officials themselves, the native farmers were at last persuaded and began to recognize the superiority of Upland species and the bright future of its cultivation.

Following the development of the cotton spinning industry in Japan and considering the hopeful future of Upland growing in Korea, and also inspired by zealous movements for cotton growing in western countries, the Cotton Growing Association of Japan was organized in 1905 through the co-operative endeavour of the Japanese Government authorities and the leading business men to raise as much cotton as possible for our spinning industry. In 1906 the Korean Government took the steps of making an outlay of 100,000 *yen* in three years, and distributed among the Korean cotton planters pure cotton seeds obtained at the seed farms and prepared at a ginnery with 30 roller gins established at Mokpo.

The management of the seed farms was entirely left in the hands of the Cotton Growing Association by the Korean Government, and the Association entrusted the work to the care of the Model Plantation Station under the direct control of the Residency-General.

In order to carry on the work entrusted by the Cotton Growing Association the Model Plantation Station established a branch at Mokpo in June, 1906, and 10 cotton seed farms in South Zenra Province. Afterwards farms were founded in various districts of six southern provinces. The Model Plantation Station not only managed the work of the seed farms but engaged in examining cotton and in giving advice to the Korean farmers.

In 1907, when the Model Plantation Station was brought under the control of the Korean Government, the Mokpo branch was also placed under its direct control.

As satisfactory results were obtained, as were expected, in every seed farm, the Korean Government decided to create, in addition, the Temporary Cotton Growing Station in September, 1908, in view of the necessity of founding an official independent institution to take necessary steps for improving and extending cotton cultivation, and the Mokpo branch of the Model Plantation Station was turned over to the charge of the Temporary Cotton Growing Station.

In 1910, when the rules governing the organization of the Model Plantation Station under the control of the Governor-General were promulgated, the work of propagation of Upland cotton cultivation was placed under the charge of the Model Plantation Station, and its Temporary Cotton Growing Station was re-named "Mokpo Branch of the Model Plantation Station." In 1912 the management of the seed farms and the works of promoting the cultivation were placed under the charge of the southern provincial authorities for convenience' sake.

The seeds obtained from the yield of Upland species with which the seed farms were sown in 1906 were distributed free among the cultivators in the districts where the seed farms were situated, as mentioned above, and the area of Upland cultivation was increased year after year by distributing more seeds obtained from the preceding yield.

Model farms were established in 1909 at conspicuous places in each province where seed farms had been founded, to give object lessons to the cultivators on the modern method of planting the foreign species. The minimum acreage of the model farm was 3 se (about  $\frac{3}{4}$  acre). It aimed at a comparison of Upland and native crops, by hands of excellent farmers in Upland cotton growing under the supervision of the farms. In 1910 the number of the model farms ran up to 22 in all, as from one to five farms were established in each province where the seed farms were situated, and they were increased to 45 next year. The highest yields of Upland cotton realized at the farms were as follows :—

286 lbs. (Seed cotton) per *tan* (about  $\frac{1}{3}$  acre) in 1910  
 462 " " " " " " 1911

This shows a great increase as compared with the native cotton crop, and this made the Korean farmers understand the greater profit of cultivating Upland cotton over native cotton cultivation.

A great difficulty was experienced in Upland cotton growing due to ignorance of Korean farmers, and even those engaged in Upland cultivation applied a very primitive and crude method of farming. It was natural, therefore, that those who willingly followed the directions of the authorities and achieved an excellent result were to be rewarded as "Superior Farmers." The reward system was put in force in 1906, and prize money and medals were awarded for the first two years, and afterwards such farm implements as hoes or weeders were given as rewards. The chiefs of local districts who had rendered good services to the seed farms were also rewarded.

In 1906, when necessary steps were taken in extending and improving Upland cultivation, only 10 seed farms had been founded, and the acreage of the cultivation was 45 *cho* (about 112 acres). In 1911 the number of farms increased to 30, the acreage to 3,043 *cho* (about 7,600 acres), and the crops of seed cotton amounted to over 3,591,000 lbs.

Statistics regarding Upland cotton growing in its trial stage are given below :—

		Acreage of Upland cotton cultivation	Yields (Seed cotton)	Number of farmers engaged
				acres
1906	..	..	113	38,228
1907	..	..	168	105,321
1908	..	..	492	187,885
1909	..	..	1,080	505,612
1910	..	..	8,170	888,640
1911	..	..	7,607	8,640,276

## COTTON EXPORTED FROM KOREA IN THE TRIAL STAGE.

	SEED COTTON		GINNED COTTON		Total Value
	Quantity	Value	Quantity	Value	
1906.. ..	1,551,700	90,207	lbs	12,12	90,207
1907.. ..	814,500	63,452	Included in Seed cotton	—	63,452
1908.. ..	448,300	18,215	588,900	85,202	103,507
1909.. ..	8,851,700	141,815	1,023,800	131,779	278,095
1910.. ..	1,993,300	79,878	1,462,000	224,991	304,865
1911.. ..	860,800	15,654	1,494,000	236,635	252,809

As the southern districts of Korea proved to be suited for Upland cultivation, as proved by the satisfactory result in the trial rearing of Upland species for six years from 1906, the Governor-General gave instructions regarding the propagation and encouragement of Upland cotton growing to six provinces in South Korea and also to the Model Plantation Stations in March, 1912. The instruction set forth the wisdom of supplying Japan proper with more Korean raw cotton, which at the same time would bring more money to the Korean farmers. The measures taken by the Governor-General are described below.

In 1912 the management of the seed farms under the control of the Model Plantation Station of the Governor-General was placed in the charge of the provinces in which seed farms were situated. Thus the work was exclusively in the hands of the provincial authorities and the business of the Model Plantation Station was restricted to the examination of seeds and acclimatization of the exotic seed.

In 1913, when the seed farms were abolished, technical experts engaged in the firms were stationed in each province and important counties to be as leaders in the cultivation, who worked in unison with the officials of the provinces and counties. The experts thus stationed were 21 in 1913, 19 in 1914, 17 in 1915, 16 in 1916 and 13 in 1917.

With a view to promoting the common welfare of the Korean cotton cultivators, a cotton growing guild was organized in South Zenra Province in June, 1912. Other provinces in South Korea followed the example. The guilds have been principally engaged in joint account sale of cotton, joint account purchase of seeds, manure and farm implements, collection of Upland seeds and in assisting the farmers to get the accommodation of necessary funds. Above all, the joint account sale business has been the most important one for the guild.

In the stage of trial rearing the seeds obtained at the seed farms were all distributed free, but when the attempt of the first extension of Upland cultivation was made in 1912 gratis distribution was limited only to newly enlarged fields, and self-support was advocated for others.

In order to prevent pure Upland seed from dissipation the Korean Government established a ginnery at Mokpo in 1906 and it was subsequently rented to the Cotton Growing Association. Regarding the purchase of Upland crops the Government appointed the Korean Cotton Co., Ltd., the establishment of which company had been realized by the good offices of Mr. Shoji, Director of the Association and Secretary of the Japan Cotton Spinners' Association, who is now one of the managing directors of the Toyo Cotton Spinning Co., Ltd., to negotiate the price with the Model Plantation Station. As Upland growing was extended, however, the monopoly of the company to purchase the crops gave rise to dissatisfaction.

As all cotton merchants were allowed to buy the cotton in Korea for the first time in 1912, when the monopoly of the Korean Cotton Co. was abolished, cotton brokers greatly increased in number and prosperous free trade followed. But the free trade system produced some evils in cotton dealings.

On account of the evil influence produced by free trade South Zenra Province issued the Regulations of Cotton Transaction in November, 1912, to guard against the evils, and through the official recommendation cultivators organized cotton growing guilds, whose members brought their own crops to the appointed place, where the quality was examined and the quantity was certified, and then the harvest was sold directly, not through the medium of the brokers, but to some appointed cotton merchants who had their own ginning factories.

This method of joint account sales by appointing purchasers was first realized in October, 1913, and the example was followed by each province in 1914. But this method had also defects of causing much trouble in making contracts, and moreover of inviting the suspicion of the farmers as if there existed some secret understandings between the Government and the appointed merchants.

As the method of sales by appointing the purchasers was accompanied by these defects and troubles, South Zenra Province adopted in 1917 the joint account sales method by public tenders for future delivery instead of appointment sales, and this method was followed by all the other Provinces. It proved most satisfactory to the farmers because competition between the purchasers raised the quotation to a prosperous stage.

It became necessary to renew seeds because those imported in 1906 from the United States of America were degenerating on account of crude methods of farming used by the native farmers. This was started in 1915 in South Zenra Province and afterwards followed by other provinces.

Though indigenous cotton is inferior in every point to Upland species, yet it is greatly demanded for wadding clothes, cushions and quilts, and to some extent for spinning, as it is superior to the Chinese or Japanese species even for the latter purpose. Therefore it was attempted to increase the native cotton crops with every effort in the districts not suited for Upland.

The scheme of the first extension was to get 100,000 *cho* (about 250,000 acres) of Upland cotton fields in six years from 1912. However, owing to the fact that the result of the trial rearing in Saishu Island could not be ascertained, one year was delayed in getting 94,000 *cho* (about 235,000 acres) cultivated. The figures are given below:—

	ACREAGE			CROP (SEED COTTON)			Yields per Acre	
	Upland	Native	Total	Upland	Native	Total	Up-land	Native
1912	18,280	148,180	161,410	9,597,456	86,869,917	45,967,873	526	255
1913	89,550	140,460	180,010	17,882,219	84,624,904	52,507,128	452	244
1914	59,910	127,610	187,520	23,285,701	29,261,849	52,497,050	388	228
1915	86,780	109,250	196,030	88,155,583	25,427,248	63,582,776	441	284
1916	183,440	92,850	227,790	41,670,780	21,598,487	63,269,267	308	234
1917	180,480	90,750	271,230	72,556,687	23,544,298	96,100,980	404	260
1918	285,800	90,240	326,040	80,705,623	22,907,308	108,612,931	340	255
1919	272,840	90,750	363,590	114,411,954	15,074,718	129,486,672	420	164
1920	266,740	99,270	366,010	117,653,656	34,920,760	152,574,416	441	351

The second extension scheme was to extend the Upland growing scheme by 100,000 *cho* (250,000 acres) and native cotton growing acreage by 35,000 *cho* (87,500 acres) to get 250,000 *cho* (625,000 acres) in total, which will yield about 332,500,000 lbs. seed cotton in 10 years from 1919.

In view of the results attained by the first extension scheme the mark of the average acreage to be attained in the second extension scheme in the six southern provinces was set at 23 per cent. of the cultivated fields. In reaching at this standard geographical and climatic conditions as well as the percentage of the available land for cotton cultivation, which is from 5 per cent. to 60 per cent., were all taken into consideration.

A table of estimated acreage to be extended on the cultivated fields in each province is given below.

Name of Provinces	Estimated Acreage of whole crops	Extension ratio of cotton crop	Acreage to be extended by
			Acres
Keiki .. .. .. ..	374,380	1·0	*15,000
North Chusei .. .. .. ..	203,480	16·1	32,730
			*8,750
South Chusei .. .. .. ..	186,440	13·4	28,750
North Zenra .. .. .. ..	158,930	26·0	40,000
South Zenra .. .. .. ..	444,880	26·9	125,000
North Keisho .. .. .. ..	458,200	18·0	73,000
			*7,300
South Keisho .. .. .. ..	267,700	33·6	90,000
Kokai .. .. .. ..	821,940	5·2	*42,500
South Heian .. .. .. ..	682,660	7·5	*50,000
North Heian .. .. .. ..	649,340	8·7	*28,750
Kogen .. .. .. ..	—	—	—
South Kankyo .. .. .. ..	—	—	—
North Kankyo .. .. .. ..	—	—	—
Total .. .. .. ..	4,242,000	—	530,000

\* Acreage for native cotton.

It is a very difficult undertaking to get cotton crop acreage extended by the reclaiming of wild districts, and moreover it costs much for its fertilization. For those who enter into the work of clearing land, therefore, an amount of money corresponding to the value of half a bean cake and 1·25 *kan* (about 10·4 lbs.) of superphosphate of lime is to be given by the local government, besides a subsidy corresponding to the value of 10 lbs. of seeds.

There are many rice fields which very often suffer from drought and can have little prospect of improving water supply, and 10 per cent. or little less of such fields may be turned into cotton fields. The estimated acreage of new cotton fields extended by this method amounts to 11,000 *cho* (about 27,500 acres).

For a *tan* (about  $\frac{1}{4}$  acre) of cotton fields turned from poor rice fields a subsidy of 50 *sen* and 10 lbs. of seeds is to be granted to the cultivators.

The number of the experts engaged in newly introduced cotton growing in each province was increased, and the total number ran up to 20 in 1921.

## 2. SUBSIDY FOR THE SALARY AND TRAVELLING EXPENSES OF COUNTY EXPERTS.

As it was ascertained that many county experts were necessary for

improving cotton cultivation and instructing native farmers, 150 experts were expected to be located in 1921, and half the expenditure including their salary and travelling expenses was to be subsidized from the local Government.

The work of renewing seeds originated in 1915. In the second extension stage, in 1919, the nursery work of the pure seeds was undertaken in South Zenra Province, a cotton district most suited for Upland species.

Next year in South Keisho Province seed farms were established after the example of South Zenra Province. Thus the pure American variety was cultivated in these two provinces and the Mokpo branch of the Model Plantation Station. Moreover, the pure seeds systematically cultivated at the seed farms of the villages and counties in the aforesaid provinces and other provinces where Upland cotton growing has been encouraged were to be exchanged with those produced by general farmers, and the renewal was to be realized once every seven years. Therefore, the acreage of the renewal of seeds corresponded to one-seventh of the whole acreage of Upland crops. However, the result was not up to expectation because the quantity of seeds raised was insufficient.

With a view to increasing the general welfare of the Upland cultivators the establishment of cotton-growing guilds was recommended by the Government, and a Government subsidy was to be granted for them.

The main objects are enumerated as follows :—

- (1) Preservation of seeds.
- (2) Improving and instructing in cotton cultivation.
- (3) Reclamation of waste land and improvement of land for cotton crop and establishment of model farms.
- (4) Assistance to exchange and distribution of seeds, and joint account purchase of manure, farm implements and other necessaries.
- (5) Establishment of seed farms for the purpose of renewing seeds and supervision of seed crops.
- (6) Holding exhibitions or lecture meetings.
- (7) Joint account sales of cotton.

The Mokpo branch of the Model Plantation Station has been engaged in the fundamental examination and investigations of cotton growing and in the acclimatization of seeds, and enlarged the business on the following lines :—

- (1) Enlargement of trial farms in order to utilize and examine new cotton fields turned from poor rice fields and dry beaches.
- (2) Enlargement of trial farms with a view to selecting pure and superior seeds.
- (3) To have 10 apprentice-students annually devoted to the study of the theory and experiments of cotton growing for one year in order to get suitable experts located at each province.
- (4) To add one more expert engaged in seed culture.
- (5) To open the Ryuko Cotton Growing Branch at Ryuko, South Heian Province, in order to have native cotton cultivation in the districts of West Korea examined. This branch was established in March, 1920.

Seed farms of each province were to be engaged in the practical investigation of local cotton growing.

## CONCLUSIONS.

*Climate and Cotton Crop of Korea.*—The atmospheric temperature of the districts where native cotton has been cultivated corresponds to that which is generally required for cotton growing.

As it rains moderately in summer-time—the growing period of cotton—and there is sufficient sunshine and the air is quite dry in autumn—the ripening season of cotton—the climate of Korea is generally suited for cotton growing. However, as Upland cotton ripens later than native species, it requires longer continuance of high temperature; therefore the districts where native species are raised are not suited for Upland species, because temperature suddenly goes down in autumn and frosts begin early.

For this reason Upland cultivation is restricted to warmer districts of South Korea. Experiments have shown that Egyptian, Sea Island and Indian cottons, which require more continuance of high temperature, are often injured by frost, and their sufficient growth cannot be expected.

As to Japanese and Chinese cottons their quality is inferior although the climate is suited for them. Therefore it may be concluded that "KING'S IMPROVED," a variety of Upland species, is best adapted for South Korea and native cotton for West Korea.

*Relations of Cotton and Other Crops.*—Relations of cotton and other crops are not the same throughout the whole districts of Korea. In South Zenra Province, where Upland growing has been improved, the cotton yield usually reaches over a picul (133 lbs.) per *tan* ( $\frac{1}{4}$  acre), and the gross profit amounts to from 15 *yen* to 20 *yen*, or a net profit of from 5 to 10 *yen* per *tan*. This profit is much larger than that of any other crop, and it is natural that Upland cultivation is driving away native cotton, soja beans red beans, German millet and Deccau grass, etc., from the fields.

In South Keisho Province also, either gross or net profit of Upland growing is much larger as compared with those of such competitive crops as beans and native cotton.

In North Keisho Province farmers now believe that cotton crops will be more profitable than any other crop should the method of Upland cultivation be improved.

In the districts of West Korea where native cotton is to be promoted in its cultivation competitive crops are German millet and soja beans, which have been cultivated with an intensive method of farming. A numerical comparison of revenue and expenditure of those crops is almost impossible, because mixed cultivation of various crops is practised in many cases. Although soja bean crop is deemed to lead all crops in the net receipts, cotton crop seems to be first of all in the gross receipts.

Anyhow, either Upland or native cotton crop is more profitable on the whole compared with competitive crops even at present, and it seems to be easy to increase the net receipts of cotton crop by 50 per cent. when improved methods of cultivation are satisfactorily realized under the present second extension plan. Then the conclusion is clear that the cotton crops will become most profitable in the near future.

*Comparison of Upland and Native Species.*—Native cotton has been largely destined for wadding clothes, cushions and quilts, and spun for home-woven cloth as its staple is short; the fibre is harsh and stiff, but

it is very strong. Cloth woven with this cotton yarn agrees with Korean taste, and North Keisho Province is famous in producing home-woven cloth. Native cotton, at any rate, is poor in the yield and the lint percentage and, moreover, has only small value as power spinning material.

Upland cotton, on the contrary, suits fairly well for power spinning because the staple is longer and more spirally twisted and, moreover, much superior in the yield and the lint percentage to native cotton. It is the defect of Upland cotton, however, that it carries tinges or stains, and the tension is weak on account of the infancy in farming and some climatic influence, while native cotton is of pure white.

The characteristics of both Upland and native species are compared below :—

	Length of Staple mm.	Tension gr	Number of Spiral Twists	Yield of Seed cotton per acre lbs.	Lint per cent
Upland ..	27.5	47.47	50.1	352	85
Native ..	26.8	66.80	11.8	221	25

*The Result of Cotton Growing Practised by General Farmers.—* The yield per *tan* ( $\frac{1}{4}$  acre) of Upland cotton has reached over 1 picul of seed cotton on an average in the districts where Upland growing has been experienced longer, and some diligent farmers have often realized the yield of  $1\frac{1}{2}$  piculs to 2 piculs. But the average yield per *tan* ( $\frac{1}{4}$  acre) realized in nine years since 1912 was only 106 lbs., which was smaller than one-third of 352 lbs., the yield of the Mokpo Model Plantation.

As to native cotton, the average yield in the nine years was only 62 lbs., which was less than one-third of 220 lbs., the average yield in three years at the Mokpo Model Plantation.

These actual poor results were due to the lack of care in the cultivation itself, whole attention being concentrated only to the enlargement of acreage in Upland growing and also due to their keeping to crude and primitive methods of farming in native cotton growing.

Therefore, when an intensive method of farming and other improvements are accomplished in cultivation, it is sure that the yield will be easily doubled.

It has been proved that there is no district where cotton cannot be cultivated all over the peninsula, North Kankyo Province excepted.

In the six provinces of South Korea, Upland is mostly cultivated, and in the other provinces, except South Kankyo Province, North Kankyo Province and Kogen Province, native cotton is being advocated in its cultivation.

It must be an interesting and important problem how much the cultivation may be improved all over the peninsula, and how far it may be possible to supply the Japanese cotton industry, besides supplying their own demands in Korea, with the cotton produced in Korea.

Putting this question aside for a while it is undeniable that, improved as the Korean cotton cultivation may become, one who expects to have the Japanese cotton industry exclusively supplied with the Korean produce would be much disappointed. However, it is true, at the same time, that the Japanese cotton industry will be greatly favoured by the improvement and extension of the cotton growing in Korea or Chosen.

## Cotton Growing in Paraguay.

*Replies prepared by Mr. Guillermo T. Bertoni, Jefe de Agricultura y D. Agricola, Asuncion, to the questionnaire on Cotton Growing.*

(1) *Area cultivated.* In view of the recent introduction of actual cultivation of cotton, we are showing in the table below the extensive expansion which has taken place.

Year	Hectares	Production of Seed Cotton	Yield in £ sterling
1917	50	60,000	1,500
1918	200	118,580	2,839
1919	825	190,850	6,546
1920	810	379,240	20,278
1921	1,005	622,998	18,690
1922	1,820	1,701,540	59,854
1923	3,900	8,800,000	202,720
1924	18,000	16,000,000	720,000 estimate

The advantage of our cotton under present conditions is that it enters the markets of the world when the U.S.A. cotton crop becomes exhausted.

(2) *Possible extension.* There is almost an unlimited amount of suitable land available. More than 300,000 sq. km. in Paraguay are adapted for cotton growing; this land is situated in the eastern and western sections (Gran Chaco). Provided immigration takes place, and that about 150,000 Indians who reside in the Paraguayan Chaco are made use of, 150,000 hectares can be cultivated. Under the present conditions of population in the western section it is expected that in a few years 40,000,000 kilos of seed cotton will be raised (65,000 bales lint) per annum.

(3) *What varieties are cultivated?* Ninety-eight per cent. is annual American and 2 per cent. perennial cotton. The indigenous kind of cotton in Paraguay which was cultivated before the discovery of America, and which is still grown in a few districts, belongs to the botanical species of *Gossypium barbadense L.*, and is therefore analogous with Egyptian cotton.

In the northern section of the country *G. brasiliense* is cultivated, and this has certain advantages for the farmer.

There are also other indigenous varieties grown mostly for domestic use, hand-spinning and weaving; these fibres are very interesting as a basis for the formation of superior types, being very productive, long in fibre and very resisting. The "Banco Agricola" intends to make use of these varieties for the purpose of seed breeding. The perennial cottons of long staple are used almost entirely for domestic spinning and weaving, which is general in the country.

Ninety-eight per cent. of the actual production is of the American kind (*G. hirsutum*), which forms a uniform type selected from these varieties from the southern States of America (Georgia).

This year the Government will undertake the execution of a method of purifying the Paraguayan type, improving by selection and separating local types. Our cotton was always classed as superior to middling American and can be readily substituted for it, as has been proved by experience.

(4) *Planting period.* From September to November inclusive : late maturing varieties are planted in September, early ones from the 15th September to 15th October ; when early sowings have suffered from drought, excessive rains or attacks from locusts, replanting takes place in December.

(5) *Picking time.* The early sowings ripen in December in small quantities ; but no matter at what time the sowings have been made the first real picking extends from the 15th January to 15th February, but the picking is spread over from four to six months, say until May, June or July, and only when the weevil, which then comes out, puts a stop to the production of the plant. In 1922 and 1923 there were hardly any frosts, so that cotton of good quality could be gathered even during July and August. The fact that Paraguayan cotton enters the world's markets just when the U.S.A. cotton crop has been used up is an important factor.

(6) *Area and density of population in cotton zones.*

District		Area in sq. km		People
Central	.. ..	2,293	.. ..	107,096
Paraguari	.. ..	4,053	.. ..	82,206
Cordillera	.. ..	6,708	.. ..	92,987
Guairá	.. ..	16,883	.. ..	57,097
North	.. ..	68,003	.. ..	78,516
South	.. ..	10,796	.. ..	87,871
Encarnación	.. ..	41,001	.. ..	118,832
Misiones	.. ..	11,780	.. ..	48,894
Chaco	.. ..	297,938		about 100,000 Indians

(7) *Average production per hectare.* The average production of ginned cotton varies, according to the different districts, between 300 and 500 kilos per hectare (one may say that roughly the same number of kilos per hectare corresponds to English lbs. per acre) in normal years, viz. :

North	Cordillera	Guairá	Paraguari	Central	South	Misiones	Chaco
Kilos 400-500	850-450	350-400	350-400	280-350	800-850	850-450	300-450

(8) *Average ginning percentage.* This differs according to the variety cultivated and the district. During latter years the average for the whole country was 31 per cent. and 32.5 per cent.

(9) *Average prices of production.* Prices are subject to the world's market fluctuations. In the capital of the country, Asunción, the following prices, converted into English money, were ruling per kilo (1 kilo=2.2 lbs.) :

	1920	1921	1922	1923
Pence ..	84.76	23.28	23.14	87.71

(10) *Cost of production.* During the year 1922 the cost of production was between 8d. and 10d. per kilo when the rate of exchange (paper money) was 3.000% ; to-day, with the fixed rate of 4.260% and taking into account the small increase of wages, the cost of production is approximately 10d. per kilo. Day wages vary, according to districts and

classes of labour, between 1s. and 1s. 5d. per day. Wages in ginning factories are between 1s. 6d. and 2s. per day.

(11) *Means of transport.* In the interior by means of river transport, railways and carts. For export: railways and steamships.

(12) *Insect pests.* So far no insect pests or diseases are known, with the exception of the following, which are found everywhere in cotton countries:

- (a) Army worm—"Ihsó carú" (*Alabama argillacea*). It exists in small quantities, as the climate is not favourable for its development.
- (b) Cotton flea—"Pulgón de Algodonero" (*Aphis gossypium*). Some years no damage is done by this pest, but in others, like 1923, certain quantities appear, but do not do any serious damage, as the majority of them have died before the cotton production really sets in. There are many natural enemies in Paraguay.
- (c) The ant—"Ihsaú" (*Atta aexdens*)—which causes damage to young plants.

(13 and 14) *Ginning machinery.* There are five factories on modern systems for ginning and baling. Most of the gins are the Eagle make of the Continental Gin Co.; hydraulic presses are in use, giving bales of 180 to 220 kilos.

(15) *Government help.* The Government has undertaken various measures with a view to fostering the cultivation of cotton.

(16) *Export taxes.* There are none.

(17) *Exports.* The major portion of the Paraguayan cotton crop is sold to Europe and shipped via Argentine-Uruguay.

The exports for the last six years have been as follows:

	1917	1918	1919	1920	1921	1922	1923
Kilos .. —	7,864	83,448	168,084	167,639	587,188	1,000,000 approx.	

(Replies to the International Cotton Federation's questionnaire by Mr. G. Taylor, Hacienda de Ybytipané, Patino, Paraguay.)

(1) *Yield of lint per hectare.* In sandy soil, 350 kilos and in red from 500 to 600 kilos; 450 kilos might be taken as an average.\*

(2) *Ginning output.* 30 per cent. to 32 per cent.

(3) *Planting time.* September to November, and later.

(4) *Picking* takes place from the end of January to June.

(5) *Rainfall.* 1·500 mm. per annum and fairly generally distributed; July is considered the dry month.

(6) *Varieties of cotton.* Cotton is indigenous to Paraguay, including several perennial varieties. The Government is encouraging the planting of approved U.S. annual varieties and urging the planter to burn the aftermath of the harvest in order to avoid pests.

\* Roughly the same quantity in English lbs. per acre.

(7) *Types of gins.* American saw gins.

(8) To date, so far as I know, no accurate census has been taken of the amount of hectares planted, but it is estimated that some 50,000 are under cultivation in cotton. There is a minimum of 500,000 hectares of excellent cotton land available in this country.

(9) *Amount a family can cultivate.* Paraguayan families are large, and cotton is a crop in which the women and children can enter. Together with other crops, such as mandioca, tobacco, etc., a family can handle up to 4 hectares.

(10) *Labour supply.* There is sufficient for doubling the crop, but you must not lose sight of the fact that this is a fairly hot country, sparsely populated, with a soil that yields abundantly and, consequently, as in Ceylon for instance, nobody works for the sheer fatigue of the effort nor for the added appetite. A cash crop that will give them better standards of living, food, clothes, housing conditions, and, especially, better education for their children, will incite them to better effort, to the elimination of the hook-worm and malaria, with its consequent stabilizing of social order. Disease and poverty are the parents of revolutions.

British capital and the Italian labourer made the Argentine, and British capital and the Italian labour are needed here. It is a beautiful little country and, notwithstanding its geographical situation and its consequent high freights to seaboard, cotton growing can be made productive and profitable in competitive markets. The freight rate on cotton from Asunción to the River Plate seaports is \$18 gold per cubic ton, and efforts are being made to reduce this for the coming crop. If Germany and Spain can buy cotton here, surely other countries can.

Dr. Venancio Galeano, Director del Banco Agricola del Paraguay Asunción, reports that the cotton harvest will be not less than 12,000,000 kilos seed cotton. This cotton will go to Germany and to Spain.

The 1922-23 crop was estimated at 5,800 bales and the 1921-22 crop at 2,600 bales.

## Cotton Growing in Italian Somaliland.

(Replies by the "Società Agricola Italo-Somala" ("Sais") as regards the village Duca Abruzzi to the questionnaire of the International Cotton Federation.)

The cultivation of cotton by the above Company, "Sais," represents the first experiment on an extensive scale in Somaliland. As no definite opinion can be formed as to the possibilities in other parts, where cultivation of cotton is carried on only on a small scale, some of the questions of the enquiry form have not been answered.

(1) In 1922 the "Sais" cultivated cotton on the first farm to an extent of 263 hectares (1.01518 square miles), and in 1923 they extended

the cultivation of cotton on the first and second farms to 780 hectares (3.01080 square miles), of which, however, 100 hectares (0.3861 square mile) on the first farm have never given promise of a good result owing to the damages caused to the young plants by a parasitic coleoptera.

(2) The "Sais" intends to cultivate cotton every year on the left bank of the Uebi Scebeli (when the work of fertilizing the ground is finished) on an area of 2,500 to 3,000 hectares, forming part of a comprehensive irrigated and fertilized region of about 6,000 hectares.

(3) The "Sais" has cultivated, and also intends cultivating in future, the Egyptian variety called Sakellaridis.

(4) The season most suitable for sowing cotton seed in this region is during the months of April and May.

(5) The harvest begins in September and continues during the whole of December and January.

(6) Somaliland does not boast of a very great density of native population. The region of *Scidle*, in the centre of which the "Sais" is carrying on its work, is one of the most populous of the Colony. In spite of this, during certain years and during certain periods of the year the "Sais" suffers slightly from a deficiency of the manual labour necessary for their plantation and general work.

(7) Last year, 263 hectares planted with cotton yielded 980 quintals of fibre, and 1,820 quintals of seed were obtained with a production of 370 kilos of fibre and 700 kilos of seed per hectare.\* The quality was found to be of the best. The fibre is from 32 to 38 mm. long.

(8) In view of the brief period of cultivation of cotton one cannot yet state exactly what will be the cost of production of a pound of cotton. The Somali workmen work on piecework system, which causes their daily earnings to vary in proportion to the work undertaken by them. Each workman (male or female) receives on an average from 40 to 65 annas of Italian rupee per day (at the present exchange from Lit.2.70 to Lit.4.35 a day).

(9) In Somaliland there does not exist any market for the purchase and sale of cotton. Our cotton of the 1922 crop was sent to and sold in Italy at an average price of about Lit.1,370 per quintal of fibre.

(10) As long as our plantation is not connected with the sea by a railway line, the "Sais" will continue to send the cotton from the place of production to *Afgoi* on the Scebeli by means of river barges, and from Afgoi to Mogadiscio (30 km.) by road tractors.

(11) There exist several kinds of cotton parasites in Somaliland. The one most to be dreaded is the pink boll-worm (*Gelechia Gossypiella*) ; its havoc can be avoided or reduced by early sowing. This year a new parasite has made its appearance ; it is a coleoptera which feeds on the young cotton plants. Studies are being undertaken for the classification of this weevil with a view to discovering the proper way to fight it. Several species of *dysdercus* and of *oseyesrenius* are also widely spread.

The fall in the temperature which occurs in the months of July and August, the south-west monsoon and the rains of September-October cause occasional damage to our cotton crops.

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\* As a general rule one may take the quantity per hectare in kilos to be equal to the same quantity per acre in English pounds.

(12) At present six roller gins of the Platt manufacture and one saw gin of the same make are being used ; the saw gin serves to go over the seed after it has passed the roller gins.

The plant will be extended little by little as the cultivation of cotton increases.

(13) One hydraulic press, made by the firm of John Shaw & Sons, of Manchester, is being used ; it furnishes bales of 220 to 260 kilos of the following dimensions : length, 1·30 m. ; width, 1·00 m. ; height, .060 m.

(14) The Italian Colonial and Central Government have favoured and helped in every way the development of the operations of the "Sais" in Somaliland, even granting loans at a low rate of interest.

(15) There is no exportation tax on cotton from Somaliland. The cotton exported is liable to the 1 per cent. customs duty.

## Cotton Growing in Kenya Colony.\*

*(Replies received from the Acting-Director of Agriculture, Kenya Colony.)*

(1) *Total area.* Approximately 10,000 acres.

(2) *Possible extension.* In Nyanza about 150,000 acres. In Kikuyu unknown, on the coast unknown. In Kenya cotton is not so much a matter of land or climate but it is a matter of labour that is the limiting factor.

(3) *Varieties.* We grow Nyasaland Upland mainly. It is sold as East African cotton.

(4) *Planting.* Plant from June 1 to July 31 in Nyanza.

(5) *Picking.* Pick in December, January and February.

(6) *Density of population.* The population varies in density from 160 people per square mile up to 400 per square mile.

(7) *Average crop.* For those areas which come to maturity 300 lbs. of seed cotton is the average yield, the lint produced being 100 lbs.

(8) *Yield.* No averages available. Have been growing cotton for only two years under control.

(9) *Price of land.* Good cotton land can be secured in Kenya ; it should cost from 10s. to £2 10s. per acre.

(10) *Cost of production—wages.* Cannot state ; it is a matter of labour. Labour is paid 8s. to 20s. per month. It is inferior material.

(11) *Transport.* From Nyanza to Mombasa cotton seed is shipped at about £1 per ton, cotton approximately £4 per ton. From other districts cost will be slightly lower.

(12) *Insects.* The cotton stainers and cotton aphid.

(13) *Ginning.* Roller and saw gins are used in practically all ginneries ; there are four working and three building.

\* Received too late for insertion under previous section of British Empire.

- (14) *Bales.* Usual Uganda pressing.
- (15) *Government help.* No guarantee prices. Land concessions might be secured. No funds for guarantee. This Government will help cotton growers to the best of its ability and the means at its disposal, but mainly indirectly.
- (16) *Export tax.* There is a tax of 6 shilling cents per lb. of lint.
- (17) *Exports.* No appreciable direct export; it has gone through Uganda hitherto.
- (18) *Staple and grading.* We have cotton from 1 in. to  $1\frac{1}{2}$  in. in Nyanza. At Voi over  $1\frac{1}{2}$  in., as also on the coast. No grading arranged.

## Cotton Growing in Spain.

(Replies received from Francisco de P. González Palou, Barcelona.)

- (1) *Present area under cotton.* About 4,000 hectares (1 hectare equals 2.4711 acres).
- (2) *Possible extension.* Andalusia, 1,500,000 hectares; Mediterranean and Cataluña, about 600,000 hectares or altogether 5,250,000 acres.
- (3) *Variety.* American only.
- (4) *Planting.* From 15th April to 15th May.
- (5) *Picking.* 1st September until end of December.
- (6) *Labour conditions.* Density of inhabitants varies from 20 to 60 per square kilometre.
- (7) *Average crop.* About 1,000,000 kilos ginned cotton.
- (8) *Average yield.* 300 kilos lint per hectare (roughly 300 lbs. per acre).
- (9) *Price of land* varies from 500 to 5,000 pesetas per hectare.
- (10) *Cost of production.* 1 kilo equals 13d. (roughly 6d. per lb. English); Wages of labourers, 4.50 pesetas per eight-hour day.
- (11) *Transport.* Per cart or rail; cost of rail to shipping port, 60 pesetas per ton.
- (12) *Insect pests.* There are several, for instance: *Grillotalpa vulgaris* (cotton boll-worm), green flies, etc.
- (13) *Ginning.* There is a factory with a battery of four machines, 70 saws each, and a press in Andalusia, and several machines in other districts.
- (14) *Pressing.* The bales are pressed to a density of 15 lbs. and weigh 225 kilos.
- (15) *Government help.* The Spanish Government is disposed to protect cotton cultivation in Spain and has established by Royal Decree of 1st June, 1923, an institute called the "Comisaría Algodonera del Estado," which guarantees a minimum price to farmers and issues protective laws tending to stimulate growers. By Royal Decree, dated 1st October, 1923, the Government has put aside pesetas 10,000,000 to

be utilized during a period of five years, or pesetas 2,000,000 yearly for the furtherance of cotton growing. There are private companies in Barcelona, such as the "Catalana Algodonera Española," devoted to the promotion and protection of cotton.

- (16) *Export duties.* There are no export duties in force.
- (17) The cotton grown in Spain is not *exported*.
- (18) *Description.* Our fully good middling Texas, 28 mm., was quoted in Barcelona on the 24th May at pesetas 6·40 per kilo.

## REGULATIONS GOVERNING THE IMPORTATION OF RAW COTTON AND COTTON SEED INTO AUSTRALIA.

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New regulations governing the importation into Australia of raw cotton and cotton seed have been made by the Australian Minister of Health by Quarantine Proclamation No. 116 as published in the *Commonwealth (Official) Gazette* of January 24, 1924. The provisions of the new regulations are as follows :

1. That the permission of the Minister to import the seed shall first be obtained.
  2. That cotton seed shall be landed only at the port of Brisbane.
  3. That cotton seed on arrival shall be disinfected by heat or by such other method as may be ordered by the Chief Quarantine Officer, and shall, after being planted, remain in quarantine with its product until released by the Chief Quarantine Officer, during which period it shall be subject to supervision by Quarantine Officers or by officers authorized for the purpose by the Director-General of Health.
  4. That imported raw cotton shall be landed only at the port of Sydney and shall, before being released from quarantine, undergo disinfection either by heat or by hydro cyanic gas or by such other method as may be ordered by the Chief Quarantine Officer.
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## New Cotton Picking Machines.

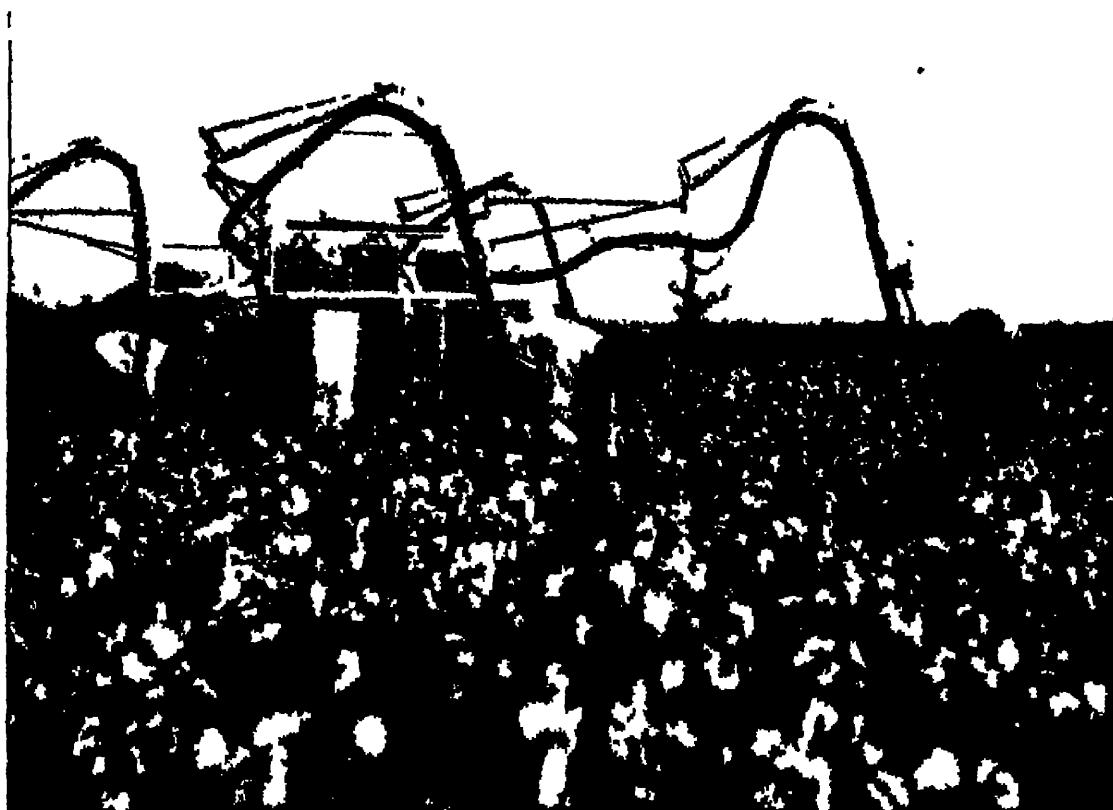
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Another effort is being made to solve the difficult problem of labour supply in the U.S.A. during picking season by means of a mechanical picker. The following is the description sent us, which we reproduce with due reserve, as we have not yet received an independent judgment as to the results obtained. The cost of the machine, which is so essential an item for the cotton growing industry which depends on small holdings, is not stated in the particulars supplied to us.

"The development and successful use of an improved electric cotton picker gives indications of revolutionizing the South's cotton industry and opening a broad field to the electrical industry by eliminating the age-old hand method of gathering cotton.

" F. W. Stuckenborg, of Chicago, is the inventor of the apparatus. It consists of a set of revolving brushes encased in a small metal frame about the size of a man's doubled fist, with an opening in the head exposing the brushes and sufficiently large to take a boll of cotton. The two brushes revolve inwardly, or toward each other, thus producing a comb-like movement which pulls the cotton from the boll the instant it comes in contact with the fibre.

" The brushes in the head are driven by a flexible drive shaft about 3 ft. long, connected to a small electric motor suspended near the head and supplied with current from a gas engine driven generator with control apparatus mounted on a farm tractor.



G.E. Electric Cotton Picking Machine, invented by F. W. Stuckenborg, Chicago.

" After the cotton leaves the brushes it is conveyed by suction through a flexible tube, 2 in. in diameter and about 20 ft. in length, to a receptacle carried by the tractor.

" Each machine is equipped with four flexible tubes, supported overhead by a balance arrangement with universal joints permitting the operator to cover five rows of cotton without moving.

" The suction which draws the cotton up the tube after the revolving brushes separate it from the plant is supplied by a second motor at the base of the tube, which likewise operates a blower and cleans the cotton thoroughly by a fanning process before depositing it in the receptacle. Thus the picker is equipped with eight motors. The four picker motors

driving the revolving brushes are rated at one-fiftieth h.p., 5,000 r.p.m., 110 volt, three-phase. The blower motors are each of one-fifth h.p., 5,000 r.p.m., 110 volts. The generator is a one and a half kva., 2,700 r.p.m., 110 volts, three-phase, 90 cycle self-excited alternator. There is also a small panel board used in conjunction with it. The electrical equipment is supplied by the General Electric Company.

"Operating data collected during thorough trials indicated that the new electric picker makes it possible for a person to gather from 400 to 700 lbs. of cotton a day, as compared with from 70 to 150 lbs. a day by hand. By so doing, it promises to solve one of the greatest problems of the cotton grower—that of being able to harvest all the cotton he plants,



The brushes in the heads of the four flexible tubes

and to do so during the limited period in the fall before the rains and the frosts damage the bloom and lessen the value of the crop.

"Among other advantages is the fact that the cotton can be picked when ripe, thus improving the grade two or three times and adding to the value of a bale. The cotton picked by this machine is in a much cleaner condition than that picked by hand.

"Under manual labour it is estimated that it takes 1,600 lbs. of seed to make a 500-lb. bale of cotton lint, after the seeds and dirt are removed at the gin.

"Electrically picked cotton shows a saving of 200 lbs. in the amount of cotton which will produce an equal sized bale of cotton lint."



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## American Cotton.

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### The Effect of the Boll-Weevil upon the Cotton Production of U.S.A.

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By JOSEPH A. BECKER, *Statistician of the Bureau of Agricultural Economics, Washington D.C. originally prepared for the International Cotton Congress at Vienna.*

THE cotton boll-weevil first entered the United States from Mexico about 1892, obtaining its first foothold in the State of Texas. Since that time, the infestation of this insect has spread over practically the entire Cotton Belt of the United States. In a few of the extreme northern and north-eastern sections of the Cotton Belt, and the north-west section of Texas, the weevil has not yet been present in large enough numbers to have seriously affected cotton production. The only three States which have not been infested at the present time are the somewhat detached western States of California, New Mexico, and Arizona. These States, however, are relatively unimportant in the cotton production of the country. Because of climatic conditions in these States, it is doubtful that the boll-weevil will ever become a serious menace there.

In the Cotton Belt, proper, only North Carolina, the northern portions of Oklahoma, and the relatively small acreages in Virginia and Missouri, have not yet been seriously affected by the advent of the boll-weevil. North Carolina is the only one of the 10 important cotton States where the infestation has not yet caused serious damage. Unless experience with the weevil in this State differs radically from that in other States, it is quite likely that cotton production in North Carolina will also be seriously affected during the next few years.

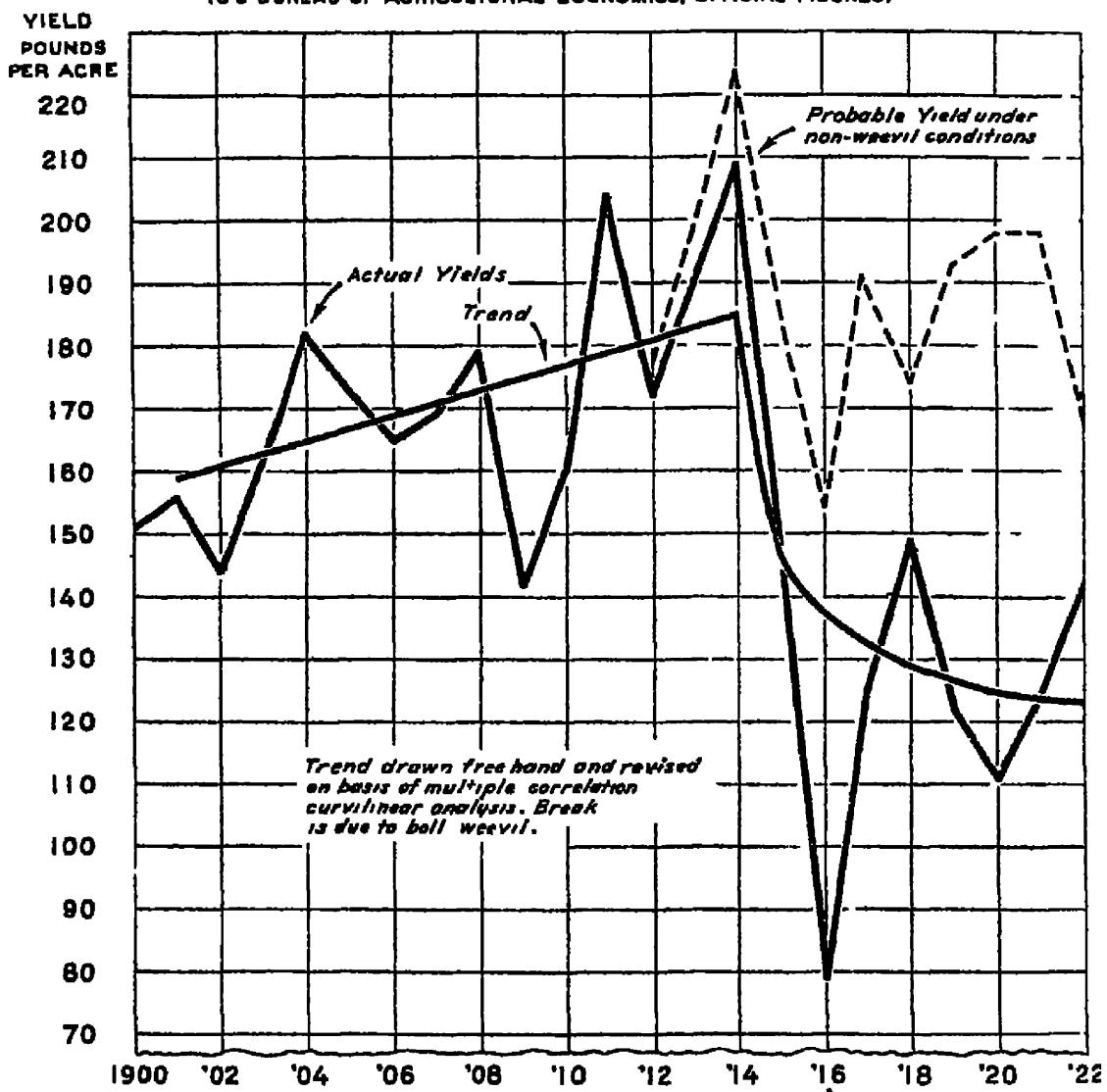
#### TREND OF YIELDS PER ACRE SINCE BOLL-WEEVIL INFESTATION.

Up to the time when the boll-weevil first began its depredations, cotton production, as reflected by yields per acre, was tending slightly upward in the majority of the cotton States. Increased yields per acre were being secured through the use of improved varieties and rather generous applications of fertilizer. Since the advent of the weevil, yields per acre have experienced a material decline varying with the geographical location of the State. In Texas, where much of the cotton is grown in that area of the State which does not ordinarily have a large summer rainfall, the reduction in yield has not been as great as in other States where precipi-

tation is heavier during the growing season. Yields per acre in Texas now average about 60 lbs. less than the apparent average of yields just prior to the full infestation of the weevil. This represents a decline of 32 per cent. In Arkansas, where conditions are somewhat similar to Texas, yields have declined about 47 lbs., or 24 per cent.; in Oklahoma, more recently invaded, yields have declined about 45 lbs., or 26 per cent.; in Mississippi, where rainfall is heavier during the growing season, the reduction in yields has been about 66 lbs., or 33 per cent.; and in Louisiana, the greatest decline of about 108 lbs., or 47 per cent., has occurred.

### YIELD OF COTTON IN ALABAMA 1900-1922

(U.S. BUREAU OF AGRICULTURAL ECONOMICS, OFFICIAL FIGURES)



The marked decline in yield in a State with considerable rainfall is shown by the above chart for Alabama. Boll-weevil first invaded Alabama in 1910, and by 1914 had invaded about one-half the area. By 1918, the entire area of the State had been invaded. Prior to 1915, the trend of yields was distinctly upward. In that year, however, average yields fell to a new level, as is indicated in the chart. Average yields in this State are now about 53 lbs. below the yields just prior to the infestation, a reduction of 31 per cent. In Georgia, a State with heavy precipitation during the summer, the yield has fallen approximately 90 lbs., or 43 per cent. This State was first

entered by the weevil in 1915, and was completely infested by 1919. Yields per acre have steadily declined, due partly to weather influences, but mainly to the damage from weevil. In South Carolina, more recently invaded, the reduction in yields appears to be in the neighbourhood of 75 lbs., or about 35 per cent. North Carolina has had only two years of infestation, with little loss to date, but as previously stated, appears to be on the verge of an experience in loss similar to that of Georgia and South Carolina.

HAS THE DECLINE IN YIELDS BEEN DUE ENTIRELY TO BOLL-WEEVIL DAMAGE?

Where a factor in crop production assumes an importance as great as has the boll-weevil in the production of cotton in the United States, there is sometimes a tendency to attribute all crop damage to that factor. In an attempt to determine whether or not the boll-weevil has been blamed for more than its share of the decline in the yields in the cotton States, I have recently made an analysis of some of the crop damage reports made to the Department of Agriculture. In 1909, the Department began a yearly inquiry on crop damage, made about the 1st of January, covering the previous year's crops. This inquiry went to the township reporters of the Bureau who were asked to report their best judgment of the percentage of the normal or full crop realized in the season just completed, the complementary percentage of total damage to crops from all causes, and the distribution of the latter to certain specified causes, about a dozen in number. It might be expected that there would be some tendency toward exaggeration in the judgment of the reporters concerning the percentage of reduction from a full crop due to boll-weevil, especially in view of the tremendously important rôle played by this insect in such reduction. The number of lbs. per acre of reduction each year, however, when obtained by application of the percentage to a full yield per acre as computed from the reports, does not seem to have been excessive. In the chart for Alabama, there is shown in dotted lines the yield which would probably have been realized had there been no weevil infestation. The probable yield per acre for each year was obtained by adding to the actual yield in lbs. the number of lbs. reduction computed from the returns. If the latter had been exaggerated, it is quite apparent that the graph of probable yields under non-weevil conditions would have been considerably above the trend line. It is apparent from an examination of the chart that this is not the case. The dotted line appears to represent a continuation of former yields per acre. Similar results were obtained for the other States. Granting, then, that the returns from these inquiries reflected fairly well the reduction in lbs. per acre due to the boll-weevil, it appears that in the State of Texas, damage from this cause has averaged about 45 lbs., or 24 per cent.; in Arkansas, 35 lbs., or 18 per cent.; in Oklahoma, about 44 lbs., or 25 per cent.; in Louisiana, 67 lbs., or 29 per cent.; and in Mississippi the damage has been about 77 lbs., or 38 per cent. In Alabama, damage from boll-weevil has amounted to approximately 72 lbs. per acre, in Georgia about 89 lbs., and in South Carolina, about 69 lbs.

Comparing average boll-weevil damage with the average decline in yields from all causes, therefore, it appears that in Texas a considerable amount of the decline in yield has been due to causes other than the boll-weevil. In this State, cotton acreage has expanded into newer areas which are not naturally as well adapted to the growing of cotton as are

the older districts. Much of the reduction in the average yield for the State as a whole has been due to low yields per acre in these newer sections. In Arkansas, Tennessee, and South Carolina, the reduction in total yield has also been greater than the reduction due to boll-weevil damage. In Louisiana the total reduction in the yield has far exceeded the reduction due to boll-weevil, indicating that other factors, such as excess of rain, floods, lack of fertilizer, and inadequate labour supply, have played a rôle nearly as great as the boll-weevil. In Oklahoma and Georgia, the total reduction in yield was approximately equal to the estimated reduction due to the boll-weevil, indicating that the latter was the controlling factor in these States. In Alabama and Mississippi, on the other hand, the estimated reduction due to boll-weevil was greater than the actual reduction in yield. This indicates that other influences or production factors were more favourable for cotton production during the past few years than during the pre-weevil years. Generally speaking, therefore, it appears that not all of the reduction in yield per acre for the Cotton Belt can be attributed to the boll-weevil; that some of the lowered yields during the past few years have been due to a series of unfavourable climatic and economic circumstances.

#### PROBABLE YIELDS OF COTTON IN THE NEAR FUTURE.

This brings us to a consideration of the yield expectancies of the near future. What yields per acre may be expected in the light of present indications? For seven of the ten principal cotton States, it appears that a practical continuation of the present yield tendencies may be anticipated. To determine such trends, the yield data for recent years has been plotted for other States, just as shown for Alabama. From present indications *average* yields for the next few years in these seven States should be *about* as follows: Texas, 132 lbs.; Oklahoma, 130 lbs.; Mississippi, 136 lbs.; Alabama, 123 lbs.; Arkansas, 150 lbs.; Georgia, 118 lbs.; and South Carolina, 158 lbs. A material recovery must be anticipated in Louisiana, where climatic conditions have been unusually adverse in recent years. While the present level of yields is about 140 lbs., on the basis of average climatic conditions a yield of about 160 lbs. seems more probable. In North Carolina and Tennessee, full boll-weevil infestation has not yet occurred, and further reduction in yields may be anticipated. Whether the extent of damage will be as great in these two States, situated as they are in the upper or northern portion of the cotton belt, is something which time only will tell. The present yield tendencies in these States are about 257 and 164 lbs. respectively. Should the boll-weevil cause damage here similar to what has occurred in the adjacent States, average yields may decline to approximately 180 lbs. for North Carolina and 140 lbs. for Tennessee.

#### PERIODICITY OF WEEVIL DAMAGE.

There is a tendency for most natural phenomena to take on a cyclical movement of gradually increasing importance (severity, in this case) till a maximum is reached, then declining gradually till a minimum is reached, and then increasing again. There seems to be such a tendency in the amount of loss due to boll-weevil infestation. In the four States first infested (Texas, Louisiana, Mississippi, and Arkansas), relatively small losses were experienced in 1911, followed by increasing damage during the ensuing years; another relatively low point in 1918 and a year of great damage in 1921. While it is somewhat dangerous to reach con-

clusions upon only 15 years' data, there does seem to be some indication of a seven years' cycle in losses due to boll-weevil. In any event, it is safe to say that weevil damage is not constant, nor is it necessarily always increasing in severity. Conversely, yields per acre should not remain low every year, nor necessarily continue to decrease. From a practical standpoint it can be seen that either situation would be impossible, since excessive damage must cause many growers in areas of heavy infestation to discontinue entirely the growing of the crop, and cause others to concentrate on smaller acreages in order to combat the weevil more successfully.

#### THE EFFECT OF BOLL-WEEVIL UPON COTTON ACREAGE.

Much of the acreage change for the cotton belt as a whole is a reflection of changes in the price of lint cotton relative to the general price level. However, a study of acreage of cotton harvested by States reveals several interesting reactions of cotton acreage to the influence of the boll-weevil. The boll-weevil first caused a serious decline in cotton yields and production in Texas in 1895. Because of the importance of the Texas crop in the United States production, prices strengthened and caused an increased acreage in Texas and other States during the next few years. Eventually production was stimulated in non-weevil territory to the point where Texas growers were producing at a disadvantage. Many growers in that State ceased growing cotton entirely or reduced their acreage and substituted other crops. As a result, in 1905 the acreage of cotton in Texas declined sharply. It has since increased gradually as new cotton territory was opened up and as boll-weevil infestation in other States again brought the Texas grower back to more equal competition. In Louisiana a drastic cut in acreage occurred five years after the boll-weevil invasion, in Mississippi and Arkansas four years after infestation. Acreage in Alabama fell from a pre-weevil acreage of 3,730,000 acres in 1912 to 1,977,000 in 1917, five years later. Now that the handicap of the boll-weevil presence is common to nearly the entire cotton belt, cotton acreage in the States of prior infestation is tending toward pre-weevil levels. In addition, much new land, never before in cotton, has been used for this crop in recent years. The area in cotton harvested in 1923 was the largest on record in the United States, and also in the States of Virginia, North Carolina, Texas, Arkansas, Tennessee, Missouri, and Oklahoma. Acreage in South Carolina, however, was over a million below the previous maximum acreage; in Georgia, over 2 million acres below; in Alabama, nearly 1 million acres below; in Mississippi, over 200,000 acres below; and in Louisiana over 200,000 acres below. Acreage harvested in 1923 was about 37,500,000 compared to a total of maximum State acreages of 42,500,000 acres. There is, therefore, a potential acreage of 5 million acres of land in cotton which might again be returned to the growing of this crop. The return to cotton of any considerable acreage in the States listed above in the very near future is, of course, problematical. Increased diversification of crops has resulted in these areas, and a return to one-crop farming is hardly conceivable, especially in view of the constant presence of the weevil. Moreover, shortage of labour, and generally increased costs of production, are not favourable to such action at present.

The last two years have witnessed large increases in Virginia, Kentucky, and Missouri. Unless unusual success is attained in the

development of quick-maturing varieties, the limit of the extension of the cotton area northward has probably been nearly reached. Expansion westward into Texas, on the other hand, seems highly probable. There are in Western Texas millions of acres of fertile land, now used for grazing, suitable for production of cotton, except that one year with another rainfall is insufficient. At present price levels there is always the possibility that considerable areas of these lands will be ploughed up for cotton after a winter of relatively heavy rainfall, and augment the already large acreage in that State.

#### THE TREND OF COTTON PRODUCTION IN THE UNITED STATES.

During the first years of the present century, cotton production in the United States tended strongly upward and reached a level of 14,000,000 bales by 1914. In 1915, a break in the trend of production occurred which was very similar to the break shown for yields on the chart for Alabama. In the face of considerable acreage increases, the present level of production appears to be approximately 10,500,000 bales. If we apply the average yield expectancies quoted above to the 1923 acreages, an expected average production in the near future is approximately 10,800,000 bales. Should present prices be maintained, it is not at all unlikely that the average acreages of the next few years will exceed somewhat the 1923 acreage and make possible an average annual production of about 11,000,000 bales. In years of relatively light boll-weevil damage, production may reach 13,000,000 bales; in years of heavy boll-weevil damage production might fall as low as 9,000,000 bales. These expectancies, it must be understood, relate to the years of the immediate future. For more distant years, the outlook must be considered more hopeful.

#### BOLL-WEEVIL CONTROL AND ITS RELATION TO FUTURE COTTON PRODUCTION.

The United States Department of Agriculture and many other agencies have devoted much effort and experiment to the study of boll-weevil control methods, and much progress has been made. One of the outstanding features of a recent review of the progress made in boll-weevil control work is the large number of methods and combinations of methods which have given satisfactory results as measured by yields obtained. The entomologists of the Department have given careful consideration and experimentation to the many plans which have been advocated to be effective. Some have been found to possess merit, some are adapted to certain sections only, while others were shown to be entirely ineffective. The present most successful control methods are divided by the entomologists of the Department into two groups: direct and indirect. The most important direct control measure consists of frequent applications of calcium arsenate during the growing season. Indirect methods consist of fall destruction of infested plants, destruction of sprout and volunteer cotton, farm sanitation (burning over of fields, cleaning up fence rows, etc.), early planting, the use of early-maturing varieties, judicious and timely use of fertilizers, more intensive cultivation, drainage, and crop rotation. The Department at the present time is tabulating returns from about 40,000 cotton growers in which the growers were asked for information on their yields, varieties, fertilizers used, poison used, and concerning some dozens of other production factors. From an analysis of these returns, it is hoped that some broad general

measure of the relative efficiency of various farm practice and production factors may be evolved.

Each of the methods and combinations of the methods mentioned above has been found to decrease boll-weevil damage and augment yields. But it can be seen at once that they add greatly to the cost of producing the crop. The lack of proper distribution of calcium arsenate has resulted so far in inadequate production, which in turn has made it a relatively expensive poison. The ordinary quantity required at 1923 prices added about \$5.00 per acre to the production cost of producing cotton. This is only one of the many added costs of producing the crop. Marginal growers with low yields per acre are unable to secure a sufficient increase in acre yields to offset the added costs. The adoption into general use of the proper combinations of control methods must necessarily be a slow process and will require years of patient effort on the part of those who have this matter in charge. However, progress is being made and continued progress will be made in this direction, since the entire country is deeply concerned in maintaining cotton production in the United States. Some increase in cotton yields must be anticipated as a result of the gradual improvement in farm practice. Should the demand for American cotton continue at the relatively high level of the past two years and prices remain relatively high, the boll-weevil control programme will be substantially accelerated. The more growers who follow faithfully and earnestly the farm practices which have proven most effective in their locality, the harder does it become for the weevil to multiply, and the more effective do the efforts of the individual farmer become.

In his fight against the boll-weevil, the southern farmer must inevitably look to the production of other crops and of livestock to augment his income during the period of low cotton yields. This means crop rotation, the use of legumes as hay crops, and of barnyard manure as fertilizer. All of these mean soil building instead of soil depletion, and augur well for increased cotton yields and production for such future date when the weevil is under control.

## Universal Standards for American Cotton.

The following constitute the European Committee appointed for the purpose of introducing and maintaining the Universal Standards for American Cotton:

President and Vice-President in office	Liverpool Cotton Association, Ltd.
F. Holroyd .. ..	{ International Cotton Federation.
Arno S. Pearse .. ..	
Edmond Veessaert .. ..	Ghent Cotton Exchange.
J. J. H. Commijs .. ..	Rotterdam Cotton Association.
Pierre du Pasquier .. ..	{ Havre Cotton Exchange.
R. Kaiser .. ..	

P. F. Lentz .. .. ..	}	Bremen Cotton Exchange.
C. Albrecht .. .. ..		
Arnold Fritze .. .. ..		
Mateo Olive Ros .. .. ..	}	Barcelona Cotton Exchange.
Francisco Fontanills Maristany .. .. ..		
Giorgio Mylius .. .. ..		
Dr. Silvio Soldini .. .. ..	}	Milan Cotton Exchange.
Marsilio Volpi .. .. ..		
Secretary to European Committee...	A. C. Nickson, Secretary of Liverpool Cotton Association, Ltd.	

A meeting of this European Committee, at which all the above Associations, with the exception of Havre, were represented, was held in the Liverpool Cotton Exchange on the 19th May, 1924.

Dr. H. C. Taylor, Chief of the U.S.A. Bureau of Agricultural Economics of the Department of Agriculture, Washington, and several of his experts were present.

At the outset it was established that several of the standards made up recently by the Department of Agriculture, Washington, and sent to Liverpool, showed some discrepancies from the set originally agreed upon, and Dr. Taylor undertook to spare no efforts so that in future such differences should not result.

The meeting agreed that 14 key sets of the Universal Standards for American cotton will be issued every year to the European Exchanges on the 1st March and that these standards be sent to the Liverpool Exchange and examined there by the European Committee. The date has been fixed for the 1st March in order to give time for correction, in cases of differences, before the season starts.

The duly appointed Appeal Committee of the Exchanges to be responsible for the maintenance of the key sets.

For this year it is agreed that the 14 key sets be ready in Washington by the 16th June; extra sets ordered immediately will be in Europe by the 1st August.

It is agreed that a responsible delegation from the European Exchanges be sent to Washington in order to compare the 14 key standards, and that such standards remain in force for arbitration during 12 months from the 1st August. The Liverpool Exchange intends sending two delegates and the Bremen Exchange one representative.\*

The powers of the delegation are that they must agree upon 14 standard keys, and the decision of the delegation is to be irrevocable. The delegation, in coming to this agreement, must be unanimous.

It was decided that individual bales are to be reserved by the Department of Agriculture out of which all key sets for all the Exchanges will be made up. The key sets will compare exactly with the original set agreed upon in Washington last August. Liverpool may use its own original set as a basis of comparison, but if any cases of differences of opinion arise, it will be necessary to proceed to Washington for the purpose of comparing the key sets with the original standard.

Two standard boxes are to be sealed; one of them is to be sent to

\* The Manchester Cotton Association has independently sent two representatives.

Liverpool and the other to be kept in Washington. The sealed samples are to be opened the following season on receipt of new key sets.

The holders of any standards can have their sets compared with the key set, and if the local Appeal Committee consider that the standard in question has been wrongly made up it will be sent back to Washington and replaced, free of charge, by the Department of Agriculture at Washington.

It was regretted that the Manchester Cotton Association did not see fit to accept the voting power allotted to the Exchange, and a recommendation was unanimously made with a view to persuading Manchester to fall into line.\* Failing the Manchester Cotton Association's consent, the three votes originally allocated to that Association will be transferred to the International Cotton Federation.

The European Committee has 50 votes and the American one also 50.

The voting power allotted to the various organizations constituting the European Committee of the Universal Standards is : Liverpool 18, Bremen 14, Havre 7, Milan 4, Barcelona 2, Rotterdam 1, Ghent 1.

It was agreed that the various Exchanges should use every effort in order to make the Universal Standards for American cotton a real success.

MANCHESTER,

ARNO S. PEARSE.

20<sup>th</sup> May, 1924.

## Cotton Crop Reports of the United States Department of Agriculture.

*Paper by JOSEPH A. BECKER, Statistician, Bureau of Agricultural Economics, originally prepared for the Vienna Cotton Congress.*

THE Department of Agriculture has issued reports on the cotton crop of the United States practically without interruption since 1866. For many years reports on cotton were limited to an estimate of the acreage planted in the spring, monthly reports during the growing season on the condition of the crop, and an annual report in December on the acreage harvested, yield per acre, and the total production in bales. In 1915, the Department began to forecast the crop on the basis of the acreage planted and the currently expressed condition. At the present time, forecasts of production are made as of the 25th of each month, from June to October inclusive.† The forecast as of October 25 was made for the first time in 1923. The estimate of production, based upon the harvested acreage and yield per acre is made during December. In addition, on the 25th of May each year the Department issues a report

\* Since then the Manchester Cotton Association has confirmed its decision to act independently, the reason being that they hold the opinion that each organisation should have an equal number of votes, as is the case in most international conventions.

† Under the terms of the Swank-Harris Act, passed in May, 1924, condition reports and forecasts hereafter will relate to the 25th May and June, and the 1st and 15th of each month from 15th July to 1st December.

of the condition of the crop and also a revision of acreage, yield and production for the preceding year. Cotton is produced in 18 of the 48 States of the Union and the reports of the Department refer to the crop in all of these States. The published reports of the Department in practically all cases carry details for 15 of these States. All of the office records and computations are made upon the State basis. My discussion here will follow closely the Outline of the Cotton Reports prepared at the time of Mr. Pearse and Mr. Foster's visit to the Washington office, which was published in the September, 1923, issue of the INTERNATIONAL COTTON BULLETIN. It will also parallel the discussion published in the annual number of *The Textile World*, prepared by Drs. Persons and Doten in collaboration with the Division Statisticians.

#### THE ORGANIZATION OF THE CROP REPORTING SERVICE.

The work of gathering and compiling information on cotton is performed by the Division of Crop and Livestock Estimates of the Bureau of Agricultural Economics. Cotton reports are cleared through the Crop Reporting Board, which was established in July, 1905, by an order of the Secretary of Agriculture. As constituted at present, the Crop Reporting Board is composed of the Assistant Chief of the Bureau, who is Chairman of the Board, the Statistician in charge of the Division, three other statisticians of the central office, and two or more agricultural statisticians called in from the field offices of the Division. The Crop Reporting Board and the Division are also charged with the duty of compiling and issuing reports on all other crops and on livestock. Cotton, however, is handled to some extent as a separate project; condition reports relate to a different date and the field representatives on the Crop Reporting Board for cotton are, of course, always from the cotton-producing States.

The Division has a field office in each of the cotton States, usually located either at the State Capital or in one of the principal cities of the State. In charge of each office is an agricultural statistician. The agricultural statistician is a well-trained, experienced man, familiar with local conditions in his State. He has a small office force and secures information by mail from a large number of farmers and others connected with the cotton industry within his State. In addition, he spends from 10 days to two weeks of each month in the field, studying conditions and personally developing his contacts with farmers, dealers and others who are interested in the agriculture of the State.

The principal original sources of information on cotton, as for all other crops, are the voluntary crop reporters, who number thousands and who serve the Department entirely without compensation other than to receive the crop reports, a few bulletins and the Department Year-book. Many of these crop reporters have served for many years. There are about 85,000 reporters, to whom requests for information on cotton are sent at one time or another during the year. In all there are eight different lists of these reporters, five reporting to Washington and three to the field representative (the State statistician). The lists reporting to Washington include 700 county reporters, each of whom maintains his own correspondents within his county; 7,000 township reporters, each reporting for a township\*; 5,000 special cotton reporters, who are bankers, cotton factors, etc., each reporting for his own locality;

\* A unit of measurement of area, six miles square, though in the Cotton Belt townships are not regular as a rule.

12,000 individual farm reporters, each reporting for his own farm; and about 16,000 cotton ginners, each reporting for his locality.

The State statisticians secure information on cotton from about 10,000 field aids, each reporting for a township or smaller area; 5,000 special cotton aids, bankers, cotton factors, etc., each reporting for his locality; and about 25,000 individual farm aids, each reporting for his own farm.

Reports from each of these various groups are tabulated and summarized separately. The Crop Reporting Board makes its estimates after a consideration of their reports and information from all other sources.

The Crop Reporting Board meets on dates selected and announced about the first of each year. Seven\* regular reports are issued on cotton, not including an "intention to plant report" which was made in 1923, but which was not repeated in 1924. Under regulation of the Secretary of Agriculture, the Crop Reporting Board so conducts the calculation, tabulation and issuance of its reports that there can be no possible way for information to be given out by the Board or any member of the Board, or employee of the Division, prior to the scheduled minute or hour of the report. In the calculation of the returns to the Washington office prior to the day of the Board meeting, the information from all sources is kept in non-assembled form in the safe in the office of the Secretary of Agriculture. When the Board meets on the morning of crop report day, this material is brought sealed from the Secretary's office by the Chairman and Secretary of the Board, after which the doors of the Crop Reporting Board rooms are locked, windows sealed, guards placed at the doors, and all means of communication with the outside, such as telephones, office buzzers and the like, disconnected. Except to admit the Secretary shortly before the time of issuance of the report, the door is kept locked until the minute when the report is released to the Press.

A penalty of 10 years in the penitentiary or a fine of \$10,000, or both, is provided by law for the giving out of information by anyone connected with the work prior to the time set for its release. All persons who are members of the Crop Reporting Board, or employees of the Division working on the crop report, are also prohibited by the same law from speculating on crops or any products of the soil.

#### PRODUCTION FORECASTS AND ESTIMATES.

You gentlemen are vitally interested in the size of the cotton crop, the number of bales of lint cotton produced or to be produced. The December estimate of cotton produced is called by the Department the "estimate" of production. The number of bales which are indicated by the current status of the growing crop is called a production "forecast." Production estimates then refer to the size of the crop when it (the crop) has been actually produced. Production forecasts refer to the indicated size as measured while it is still growing and subject to the various influences which may reduce or enlarge it. The forecasts of production are issued because of the need of information concerning the progress of the crop at as early a date as possible. The need for this information is felt by you gentlemen as well as by the cotton producer. The size of the crop varies with the acreage and with the yield per acre. The determination of each will be discussed separately.

\* Under terms of Swank-Harris Act increased to twelve.

## ACREAGE ESTIMATES.

The determination of the number of acres planted or harvested of a given crop is one of the most difficult tasks which the statisticians of the Department have to undertake. Experience over many years has demonstrated that no one method is infallible, but that a combination of methods, one serving as a check upon the other, does give results which are reasonably accurate. Some of these methods give an indication of absolute acreage; others give an indication of changes in acreage from the preceding year or from a base year. The various methods used by the Department will be discussed.

The primary basis of the acreage estimates of the Department is the acreage count or enumeration made by the Bureau of the Census of the Department of Commerce every 10 years. In the case of cotton, an indirect check upon acreage is available each year in the annual enumeration of the number of bales of cotton ginned. This enumeration is made by the Bureau of the Census. The indirect use to which this enumeration is put will be discussed under the heading of the final acreage revision to be touched upon later.

The estimate of acreage in cotton is made about the first of July each year and relates to the acreage of cotton in cultivation on June 25. *Any acreage abandoned prior to that time is not included in the estimate.* The December estimate of abandonment, which is published, does not relate to any abandonment which occurs before this date, but refers to the acreage which was in cultivation on June 25 and which was subsequently abandoned. By "abandonment" is meant the acreage planted to cotton but from which no cotton whatever was picked. The first method of estimating acreage which I will discuss is based upon an inquiry to crop reporters in which they are asked to report their judgment on the following question: "What is the present acreage of cotton in your locality compared with the acreage a year ago (representing acreage a year ago by 100 per cent.)?" For many years prior to about 1915 this method was the Department's main reliance in estimating acreage. The method, however, was never very satisfactory. It was quite apparent to all those concerned with the making of estimates that there was a strong disinclination on the part of the reporters to report over 100 per cent. Consequently, allowance had to be made for this weakness in the report. This question is still asked and allowance is made for the weakness, but generally speaking, indications from this method are given very little weight at the present time.

The second method was inaugurated during the first decade of the present century. This was a companion question to the first question which read as follows: "What is the present acreage in cultivation compared to the *usual* acreage in your locality (representing usual acreage by 100 per cent.)?" Returns to this question also tended to fall below 100. However, when the current returns were compared with the returns to the same question in the preceding year as a base, an indication of the true change in area was secured. Both returns were compared with the same measuring stick, the rather indefinite "usual acreage."

For example, should the returns made last year have been 95 per cent., and those made this year 93 per cent., the indication would be that the actual acreage was 93/95, or 98 per cent. of last year's acreage. This method was a definite improvement upon the first method mentioned

and is still quite useful where acreages are rather stable, fluctuating upward and downward about a rather stable acreage. However, in the States which are making rapid growth in crop area, the method fails. Where considerable shifts in acreage occur from one year to the next, the method has not been successful in indicating the full magnitude of change.

The third inquiry in which the crop reporter is asked to give his judgment as to the acreages in his locality reads as follows: "Of every 100 acres in crops in your locality, how many acres are in corn, wheat, cotton, etc.?" Tabulation of the returns to this inquiry gives the weighted number of acres per 100 of all crops which is in each of the main crops. Just as in the second method, comparison is made with returns to a similar inquiry in the previous year. For example, if 49 acres of every 100 acres in all crops were reported in cotton this year, and 50 acres last year, the indication would be for an acreage 98 per cent. as large as last year. Indications derived from this inquiry are perhaps the most useful of those secured from the so-called "judgment inquiries."

A fourth indication is secured from sample data. The voluntary crop reporters on all lists are asked to report the acreage of cotton on their own farms. This method was first begun in 1914, and successful results from the sample data can only be secured when a large number of individual reports are utilized. The use of this form of questionnaire therefore entails considerable additional expense in building up lists, in tabulating and summarizing the returns. It is only in recent years that the Division has had facilities for this increased work.

If in a given State 20,000 acres of cotton were reported on the sample farms last year as against 19,600 on the same farms this year, the indication would be that acreage this year was 98 per cent. as great as last year. The Department now has records on over 2 per cent. of the entire cotton acreage in the United States for each year since 1914. When the year-to-year relatives (series of percentages of change from previous year) are compared with the year-to-year relatives of the final estimates, which are based indirectly on the Census ginning figures, it is noted that there is a rather constant difference between the two series. In other words, there appears to be a tendency for reporters in the current reports to underestimate the acreage in cultivation this year, or to overstate the acreage in cultivation last year. This overstatement may be due to some extent to conservatism in reporting acreage this year. The most probable explanation, however, is that to a large extent farmers reporting do not make changes in acreage in the same ratio as farmers as a whole. This divergence of sample returns from farms as a whole is noted for other crops as well as cotton wherever there is a check available. In deriving an indication of change in acreage from this material, the Crop Reporting Board must, of course, make allowance for this statistical bias.

The fifth method of estimating acreage or change in acreage is known as the field count method. This consists in the counting, year after year, of actual fields planted with cotton over identical routes in successive years. This work is done by the agricultural statistician in the State, and has given very satisfactory results in a number of States where it has been carried on for five or six years. If, for instance, in a thousand miles of travel the statistician counts 980 fields of cotton this year over the same route on which he counted 1,000 fields last year, the indication would point to an acreage 98 per cent. as large as last year. A refinement of this

method is known as the pole count, where the number of telephone poles opposite fields of cotton and other crops are counted each year. The absence of poles and the irregularity in the size and shape of fields in some of the Southern States has brought forth during the past year a further refinement in the form of a multiple road meter attached to an automobile. By means of this instrument, it is possible to measure the actual frontage in feet of each crop along the designated route year after year. After a number of years' records with this instrument have been secured, the Department will be in a position to gauge the relative merit of this method.

The sixth indication of acreage change in cotton is based upon records of fertilizer sales in the Southern States. In nearly all of these States each bag of commercial fertilizer sold must have attached a tag purchased from the State Department of Agriculture. This record is secured by the agricultural statistician in each State about the middle of June. On the June inquiry, estimates are secured from crop reporters as to the amount of fertilizer used per acre on cotton, the relative proportion of all fertilizer purchased which was used on cotton, and the percentage of cotton fields which received fertilizer. This data, used in connection with the record of fertilizer tag sales, gives another indication of the acreage of cotton planted this year as compared with last year.

The seventh indication of acreage change is obtained from a study of the number of acres of cotton per plough, which in the old cotton belt means one negro labourer, one mule and one plough. Information is secured both on a judgment and on a sample data method. In a few States this has proved very helpful.

An eighth method of indicated change in acreage is secured from a study of the changes in acreages of crops other than cotton. In the strictly cotton States, the entire acreage of cotton varies from one-third to one-half of the acreage in all crops, and a change in the acreage of other crops gives an indication of the complementary change in cotton acreage.

After consideration of these eight indications, the Crop Reporting Board arrives at an estimate of the acreage of cotton in cultivation on June 25. This acreage is used as the base to which the forecasted yield per acre is applied in computing the production forecasts during the growing season of the crop. The harvested or picked acreage of cotton, by which is meant the acreage in cultivation on June 25, less subsequent abandonment, is estimated for use in the production estimate early in December.

The Department repeats all its acreage inquiries during the autumn. Sample data on individual farms are secured on a general inquiry which covers not only cotton, but also all other crops. This inquiry is made in September, when practically all of the abandonment has been determined. Because the inquiry relates not only to cotton, but to all crops, the basic material can be used in several ways: first, as an indication of acreage change from previous year; second, as a ratio which cotton bears to all other crops, or in other words to the total crop acreage of the State. In connection with the December report, fertilizer records are available for the entire season, and acreage counts made during the summer can be used as a further check.

A ninth indication of acreage is secured by subtracting from acreage in cultivation on June 25 the acreage which has subsequently been

abandoned. As previously stated, this is determined by an inquiry of the crop reporters.

There is also a tenth indication of harvested acreage which will be discussed a little later.

#### FORECASTED YIELD PER ACRE.

The expected or forecasted yield per acre of cotton which is applied to the acreage to secure the bale forecast is based upon the currently reported condition of the crop. That is, the forecasted yield is an interpretation of the currently reported condition expressed as a percentage of the normal or full condition. On the 25th of each month, from June to October, crop reporters are asked to estimate the condition of the crop on that date as compared with the normal condition on that date. This normal condition, which the crop reporter takes as 100 per cent., may be defined as a state of growth and progress of the crop which would result in full yields per acre should conditions from the given date until harvest be average. A normal crop is therefore a full crop, and the normal condition one which from the current state of growth and progress promises a full crop. Objection is often made to the use of this "full crop" as a basis since it is an indefinite quantity of cotton per acre. An analysis based upon comparison of reported condition and final outturn, however, indicates that the crop reporter has a well-defined judgment of what the normal or full crop represents. This is evidenced by the fact that a normal, computed from reports on condition and yield, represents a rather stable number of pounds of cotton per acre. The significant fact to be noted is that crop reporters of the Department seem to understand the term and are able to make comparisons with it.

The expected yield per acre indicated by a given condition on a certain date is interpreted on the basis of the relation in past years of condition on that same date to the final yield per acre. Over a series of years a given condition has been associated, one year with a certain yield per acre, and in another with a somewhat different yield per acre. This is due to the fact that in the first year subsequent weather and other influences may have been more favourable than average and caused an improvement in the crop before harvest. In another year, these influences may have been less favourable than average and caused a decline. In determining the most probable yield per acre indicated by currently reported condition, the Department must assume that subsequent influences will be average. As a matter of fact, these influences are seldom average. Consequently, the realized yield is generally somewhat above or somewhat below the forecast. In the long run, the yield should be above about as often as below.

#### THE DETERMINATION OF PARS.

In its interpretation of yield per acre from the currently reported condition, the Department uses a method of pars. The par is based back upon the reported condition and the reported yield per acre of past years. On a given date, it represents the mathematical expression of the reporters' concept of the full crop, in other words, a 100 per cent. condition. That is to say, the par for a given date is the yield that might be expected if the present condition of the crop is such as to cause the reporter to report it at 100 per cent.

A table has been included for the printed report which shows the condition and yield of cotton in the State of Texas from 1909 to 1923, inclusive.

## INTERNATIONAL COTTON BULLETIN

TABLE I—TEXAS COTTON, CONDITION AND YIELD, 1909-23.

	CONDITION					YIELD	
	May 25	June 25	July 25	Aug 25	Sept 25		lbs
1909 .. .	78	79	70	59	52	—	132
1910 .. .	83	84	82	69	63	—	149
1911 .. .	88	85	86	68	71	—	192
1912 .. .	86	89	84	76	73	—	206
1913 .. .	84	86	81	64	68	—	157
1914 .. .	65	74	71	79	70	—	188
1915 .. .	79	82	76	67	57	—	140
1916 .. .	78	81	78	66	68	—	157
1917 .. .	74	72	68	55	53	—	135
1918 .. .	82	84	61	48	44	—	110
1919 .. .	76	69	67	61	52	46	125
1920 .. .	60	71	74	67	61	62	160
1921 .. .	71	72	62	42	38	38	96
1922 .. .	61	72	72	59	52	56	130
1923 .. .	77	77	71	55	56	57	146

The par which is used in forecasting yield per acre is derived after a study of the past records. For example, if we take the year 1923, condition on the 25th of each month beginning with May was as follows: May, 77; June, 77; July, 71; August, 55; September, 56; October, 57. The yield per acre was 146 lbs. That is to say, the yield of 146 lbs. is associated on the various dates with the various reported condition figures. From this one year's record, with a different condition reported for each date, we would have a different par for each date. If the reported condition of 77 per cent. on May 25 was accompanied by a yield of 146 lbs. then a reported condition of 100 per cent. might be expected to have been accompanied by a yield of  $146/77$ , or 190 lbs. This is the computed par for May 25. The computed par for October 25, similarly derived, would be  $146/57$ , or 256 lbs. That is to say, if the condition on October 25 had been reported at 100, a yield of 256 lbs. per acre might have been expected. An additional table has been included which shows the pars so computed from the data represented in the first table.

TABLE II.—TEXAS COTTON, COMPUTED PARS, 1909-23

Equivalent in lbs. per acre of 100 per cent. condition.

	May 25	June 25	July 25	Aug 25	Sept 25	Oct 25
1909 .. .	169	167	189	224	254	—
1910 .. .	180	177	182	216	287	—
1911 .. .	218	226	223	282	270	—
1912 .. .	240	231	245	271	275	—
1913 .. .	187	188	194	245	249	—
1914 .. .	282	247	258	282	261	—
1915 .. .	189	182	196	222	261	—
1916 .. .	201	194	201	288	249	—
1917 .. .	182	188	199	245	255	—
1918 .. .	184	181	180	256	250	—
1919 .. .	164	181	187	205	240	272
1920 .. .	267	226	216	289	262	258
1921 .. .	185	188	155	229	258	258
1922 .. .	218	181	181	220	250	232
1923 .. .	190	190	206	265	261	256

It will at once be seen that the higher the reported condition, the lower will be the par. It will also be noticed that generally speaking the condition figure declines as the season progresses and that consequently the par increases. The pars, based upon the relation of final yield to condition on May 25, vary from the low figure of 135 lbs. in 1921, to a high figure of 282 lbs. in 1914. This range of 147 lbs., when divided by two, or  $73\frac{1}{2}$  lbs., gives an indication of the extent to which the yield per acre for a State may vary from the yield forecasted from condition early in the season. The par for May 25 used by the Department has been in the neighbourhood of 195 lbs. during the years for which forecasts have been made. In the low year (1921) weather and other influences upon the crop after May 25 were less favourable than average, but in the high year of 1914 they were more favourable than average. As a result, the forecasted yield per acre in 1921 of 138 lbs. (71 per cent. of the par of 195 lbs.) was 42 lbs. higher than the final yield per acre (96 lbs.). While the Department made no forecast by States in 1914, the par for that date would have been in the neighbourhood of 210 lbs. Application of the condition figure of 65 per cent. to this par would have given a forecasted yield per acre of 136 lbs., which was 47 lbs. less than the final yield per acre of 183 lbs. It will be noted that the range in the computed pars for the later months is much smaller. This is, of course, to be expected since fewer things may happen to reduce or enhance the crop between each successive date and maturity. The range for September 25, for example, when the crop is practically made, was from 237 lbs. in 1910 to 275 lbs. in 1912. The probable variation between the yield per acre forecast from September 25 condition and the final yield per acre is therefore very much smaller. The relatively small variation in the computed pars for September 25 illustrates the point previously made that crop correspondents do know what is meant by the term "normal," that they are able to make comparisons to it, and that they have in mind a rather stable concept of the "full crop."

Crop pars, as finally adopted for each year, are derived from a study of the computed pars for the individual years as shown above, and also after a consideration of the three-year, five-year, and ten-year moving averages of these pars. The trends toward a higher or lower concept of normal are indicated by these moving averages. Such a series of five-year moving averages is shown in Table III.

TABLE III.—TEXAS COTTON, FIVE-YEAR AVERAGES, 1912-23.  
Equivalent in lbs. per acre of 100 per cent. condition.

	May 25	June 25	July 25	Aug. 25	Sept. 25	Oct 25
1912-16 .. .	218	205	217	289	257	—
1913-17 .. .	206	197	207	284	258	—
1914-18 .. .	197	188	206	238	255	—
1915-19 .. .	178	175	192	238	250	—
1916-20 .. .	190	184	197	287	251	—
1917-21 .. .	176	172	187	285	252	—
1918-22 .. .	188	170	184	230	251	—
1919-23 .. .	194	182	189	232	253	254

It will be noted from this table that in the earlier months there is a distinct trend toward a lower concept of normal on the part of the crop correspondents, due, no doubt, to a considerable extent to the fact

that after some years of experience under boll-weevil conditions they have been able to make allowance for probable boll-weevil damage earlier in the season. From the September 25 pars, it will readily be seen that there is very little change in the concept of a full yield per acre judged by the condition of the crop at harvest time. The pars adopted for use in the State of Texas in 1923 were as follows : May 25, 190 ; June 25, 182 ; July 25, 195 ; August 25, 230 ; September 25, 253. It will be noted that the par increases as the season advances. This explains why it is possible for a decline in condition to be accompanied at times by an increase in the forecast of yield per acre. Such a circumstance results whenever the decline in condition is proportionately less than the increase in par.

There is a close relationship between decline in condition and an increase in abandonment of acreage. That is to say, when the condition of the crop becomes very low the percentage of the area from which no cotton is picked becomes larger. Because of this fact, when the condition in a given month is reported very low, the Crop Reporting Board must make allowance for the probable area which will not be picked. Inasmuch as some abandonment is reported in every year, it must, of course, be understood that allowance must always be made in the par for an average abandonment.

#### ACCURACY OF FORECASTS.

The Department has issued forecasts of cotton production each year during the growing season since 1915. During that period the crop has varied in size from 7,950,000 bales to 13,440,000 bales. A summary of these forecasts is shown in Table IV.

TABLE IV. COMPARISON OF COTTON FORECASTS AND FINAL GINNINGS  
(000's omitted).

Year	July			August			September			October			December			Final Ginnings reported by the Census
	Fore- cast	A	B	Fore- cast	A	B	Fore- cast	A	B	Fore- cast	A	B	Esti- mate	A	B	
1915 ..	*Bales 12,881	11	—	*Bales 11,878	8	—	*Bales 11,897	5	—	*Bales 10,960	—	2	*Bales 11,181	—	†	*Bales 11,192
1916 ..	14,266	25	—	12,916	13	—	11,800	8	—	11,637	2	—	11,511	1	—	11,450
1917 ..	11,888	8	—	11,949	6	—	12,499	11	—	12,047	7	—	10,949	—	3	11,302
1918 ..	15,927	27	—	13,619	13	—	11,187	—	—	11,818	—	2	11,700	—	3	12,041
1919 ..	10,088	—	4	11,018	—	4	11,230	—	2	10,968	—	8	11,030	—	3	11,421
1920 ..	11,450	—	15	12,310	—	7	12,783	—	5	12,123	—	10	12,987	—	3	13,140
1921 ..	8,438	6	—	8,208	3	—	7,097	—	12	6,587	—	18	8,340	5	—	7,954
1922 ..	11,065	19	—	11,449	17	—	10,575	8	—	10,186	4	—	9,964	2	—	9,762
1923 ..	11,412	18	—	11,516	14	—	10,788	7	—	11,015	9	—	10,081	—	†	10,128
November																
—	—	—	—	—	—	—	—	—	—	10,248	1	—	—	—	—	—
Av'ge ..	11,884	8	—	11,674	6	—	11,061	1	—	10,778	—	2	10,858	—	1	10,965

\* 500-lb. gross weight bales.      † Less than one-half of 1 per cent.

Percentage of increase or decrease compared with final ginnings :

A = Above final ginnings.

B = Below final ginnings.

The July forecasts, based upon the condition as of June 25, have averaged 8 per cent. above the final outturn ; the August forecasts 6 per cent. above ; September forecasts 1 per cent. above ; and October forecasts 2 per cent. below. The real criterion of the accuracy of forecasts, however, is the number of times in which the Department has been above

as compared with the number of times when it has been below. In the long run, the forecasts should be above about as often as they are below, and note that this is practically true for the forecasts for September and October. For July and August, however, the Department has been above seven times, and below only twice. This would indicate that during the nine years for which forecasts have been made, weather and other influences subsequent to the 25th of June and 25th of August have been less favourable than average. This decline in condition has been attributable to a considerable extent, of course, to the spread of the boll-weevil. This is particularly true since during this period the weevil has spread into the South-Eastern States, where the normally heavy rainfall during the growing season has been favourable to the depredations of the boll-weevil far beyond what could have been foreseen. Even so, the forecasts from condition were, as a whole, closer to the final yield than the ten or five year averages of the preceding years.

#### FORECASTING FROM INDEPENDENT DATA.

Let me emphasize again the fact that the Department forecasts of yield per acre are an interpretation of the observed condition of the cotton crop at one-month intervals during the growing season, and that the forecast is made upon the basis of subsequent average influences upon the crop until harvest. It would seem that the next logical steps in the forecasting of yield per acre should be based upon forecasting the extent to which future conditions will depart from average, and measuring the influences which have operated upon the crop but whose effects are not apparent to the crop reporter. This involves long-time forecasts of weather damage, and, in the case of cotton, of boll-weevil damage. The studies of some meteorologists have indicated that there is some hope of making such long-time forecasts of weather changes. The Bureau of Entomology is making technical studies along this line. The Division of Crop and Livestock Estimates itself is securing some data on boll-weevil emergence and similar factors through its reporters which will give some indications of probable future boll-weevil damage. With the present important rôle played by the boll-weevil in the reduction of the cotton yields, the Department is quite hopeful that some progress in this direction may soon be made. Another logical step (in the actual forecasting of yield per acre) is forecasting upon the basis of independent factors separate and apart from the observed condition. Some progress has been made in this direction for limited areas, and studies are being continued along this line by the Department. For example, it has been apparently demonstrated for one State that yield may be accurately forecasted from June, July and August weather conditions. A complication which is becoming increasingly important since the boll-weevil invaded the Southern States is the fact that the effect of the weather upon the crop yield is complicated by the effect of weather upon the boll-weevil. Any attempt to forecast yield per acre of cotton from independent data must be made in the light of this interaction.

#### PRODUCTION ESTIMATES.

Up to this point I have been dealing with the determination of acreage and with the determination of the probable or expected yield per acre, which serve as a base for the production forecasts. A production estimate is made early in December of each year. At that time, the cotton crop

has been harvested over the major portion of the cotton belt and nearly all has been ginned. On December 1, various lists of reporters, with the exception of individual farm lists, are asked to give their best judgment on average yield of lint cotton per acre for their locality. The individual farm reporters are asked to report the average yield per acre of lint cotton on their own farms. The returns from each list are summarized separately from this material. From these data the Crop Reporting Board makes its estimate of the average yield per acre for each State. As previously mentioned, the reporters at the same time are asked to estimate the percentage of acreage which was in cultivation on June 25, and which was subsequently abandoned. This information is not secured on a sample data basis from individual farms. Such an inquiry would seem inaccurate on a sample basis, since the individuals suffering the highest abandonment fail entirely to report. As a result abandonment on individual farms does not measure the fluctuations in abandonment for an entire area.

In the estimate of production made in December, the Board secures five separate indications of the total size of the crop, each of which serves as a check upon the other four. The first indication is secured by applying to the estimated acreage harvested the average yield per acre. The second indication is the application of this same yield per acre to the reported acreage in cultivation on June 25, minus abandonment. The third estimate is based upon the report of cotton ginned prior to December 1, as reported by the Bureau of the Census, converted to 500-lb. gross weight bales and divided by the estimated percentages of the entire crop ginned to December 1. This estimate of the percentage ginned to December 1 is based upon reports from the ginners' list to an inquiry in which they are asked to give their judgment for their locality of the percentage of cotton ginned to December 1. Such an inquiry has been carried out since 1912, and a study has been made of the relative accuracy of these estimates by comparison with the ginning returns. In this study, as in so many other studies where a check is available, a statistical bias is indicated for which allowance is made in computing the size of the crop from this indication. The fourth estimate is based upon the study of the relative exhaustion of cotton as indicated by the ginning returns. It has been found that there is a rather significant relationship between the quantity of cotton ginned for the period November 14 to December 1 and the amount which will be ginned during the balance of the season. An estimate of the quantity of cotton still remaining to be ginned is deduced from this study and added to the Census report on bales ginned to December 1, converted to 500-lbs gross weight basis.

The fifth independently computed estimate of the size of the crop in bales is the estimate made independently from similar sources by the field statistician in each State. Ordinarily, there is a very close agreement between the independent estimates from the five sources. The Crop Reporting Board, after a full consideration of this information, adopts the figure which represents the best interpretation of the Board as to the probable size of the crop.

The relation of the December estimates to the final ginning is also shown in Table IV. It will be noted that the estimate has been below the final ginnings four times, has been above the final ginnings three times, and has been the same twice (less than one-half of 1 per cent.). The largest difference was the 5 per cent. overestimate in 1921. On an

average, the estimates for the nine years have been 1 per cent. below the final ginnings. With the gradual development of improved methods of estimating acreage, and forecasting yield per acre and total production, the Department has every confidence that the differences between the forecasts and production estimates and the final ginnings can be materially reduced.

In the discussion of the estimate of acreage harvested, the twelfth indication of acreage was mentioned but was not discussed. This indication is an acreage which is worked backwards from the December estimate of production reduced to pounds of cotton, divided by the average yield for each State. The final revised estimate of acreage is made in the spring of the following year and is published about June 1. It is based upon a reconsideration of the average yield per acre as affected by information received subsequent to the December 1 report. On the 20th of March, as you know, the final ginning returns are published and, from an analysis by county and district, some change in the yield is sometimes indicated, although as a rule this is slight. The acreage in the State is then determined by dividing the total pounds of lint cotton produced in each State, as reported by the Census in its report as of March 1, by the average yield per acre. The revised acreage in cultivation on June 25 is then determined by adding to this harvested acreage the acreage which it was estimated had been abandoned subsequent to June 25.

#### INTENTIONS TO PLANT.

\* In 1923, the Department of Agriculture inaugurated the much discussed report on farmers' intentions to plant. This report covered all the major crops including cotton. The purpose of the "intention to plant report" is to assist the farmer in making his final decision with regard to the acreage which he will plant to each crop. The Department feels that if the individual farmer has information as to what farmers as a whole are planning to do with respect to the acreage which will be planted to each crop, he will be in a position to adjust his acreage before it is too late and thus prevent overplanting or underplanting of certain crops. The purpose of the "intention to plant report" was not fully understood, and as a result considerable opposition to it was made, particularly to the intentions report on cotton. Because of legislation before Congress, specifically prohibiting these reports on cotton, no compilation was made in the spring of 1924. Doubtless, however, you will be interested in knowing how this report is compiled. This report is based upon a schedule sent to all lists of voluntary crop reporters, in which they are asked to give for their own farms the acreage which they harvested of the various crops last year and the acreage which they intend to plant in the coming year. The report itself represents a change in acreage based upon these returns.

#### CONCLUSION

It has, indeed, been a very great pleasure for me and for the Department which I represent to have the opportunity of placing before you a full discussion of the methods used in making the estimates and forecasts of cotton production. This is said particularly because there has been a feeling which is only gradually becoming displaced that there was something mysterious about our methods and that we were somewhat loath to submit them to the scrutiny of farmers, business men and statisticians

generally. Let me say emphatically that the Department has no wish to clothe its methods with secrecy. As a matter of fact, the Department realizes that once people are fully conversant with the methods which it uses, they will be in a position to make valuable and helpful suggestions which would tend toward greater accuracy in these reports. This is the end that is being sought by the Department. If, therefore, there are any phases of the work of the estimating of the cotton crop which I have not fully covered, the Department would feel it a great privilege to have an opportunity of providing further information.

## First Cotton Crop Condition Report of Season.

The following is the report issued on June 2 by the U.S.A. Department of Agriculture, Washington, D.C. :

	1924	1923	1922	1921	1920	1919	1918	1917	10 year average
Virginia ..	62	79	91	77	71	89	89	75	83
North Carolina ..	71	77	84	65	70	85	84	68	77
South Carolina ..	68	64	67	58	68	78	80	70	70
Georgia ..	68	65	71	68	55	81	78	60	72
Florida ..	77	87	85	60	62	73	73	76	76
Alabama ..	70	70	80	57	58	78	78	61	72
Mississippi ..	69	70	73	60	65	73	86	66	75
Louisiana ..	70	68	70	37	72	74	85	74	74
Texas ..	66	77	61	71	60	76	82	74	72
Arkansas ..	58	66	76	70	61	68	85	64	74
Tennessee ..	54	70	79	69	60	64	90	68	73
Missouri ..	52	54	90	73	64	70	79	78	77
Oklahoma ..	58	63	67	74	70	65	86	77	78
California ..	91	93	84	75	86	91	91	82	88
Arizona ..	90	92	81	74	80	—	90	—	—
Other States ..	89	90	78	93	68	—	—	—	—
Average condition ..	65.6	71.0	69.6	66.0	62.4	73.6	82.3	69.5	72.8

The average condition as on the 25th May was 65.6 per cent., against 71 per cent. last year and 69.6 per cent. in 1922, etc.; the 10 years' average was 72.8 per cent.

There were slight gains in South Carolina, Georgia and Louisiana. The most serious aspect is that Texas, on which we depend for the main crop, shows a decrease of 11 points against last year.

The Bureau has now issued the final revised figures of acreage planted in 1923; there are 38,709,000, against 34,036,000 in the preceding year; the yield of 1923 worked out to 130.6 lbs. per acre, against 141.3 lbs. per acre in the preceding year.

# FIRST COTTON CROP CONDITION REPORT

541

Last year's revised acreage (in thousands) : Virginia, 74 ; North Carolina, 1,687 ; South Carolina, 2,005 ; Georgia, 3,844 ; Florida, 171 ; Alabama, 3,190 ; Mississippi, 3,392 ; Louisiana, 1,464 ; Texas, 14,440 ; Arkansas, 3,120 ; Tennessee, 1,221 ; Missouri, 394 ; Oklahoma, 3,400 ; California, 235 (includes 150,000 acres Old Mexico not included in total) ; Arizona, 130 ; New Mexico, 70 ; other States, 22 ; total, 38,709.

The corresponding figures of previous years, together with acreage and crop, were :

Year	Condition per cent	Acreage	Crop Bales Actual Growth New Orleans*
1919 .. .. .. .	73.6	35,185,000	12,000,000
1920 .. .. .. .	62.4	37,043,000	13,750,000
1921 .. .. .. .	66.0	31,678,000	8,412,000
1922 .. .. .. .	69.6	34,016,000	10,424,000
1923 .. .. .. .	71.0	38,709,000	10,081,000
1924 .. .. .. .	65.6	—	—

\* U.S. Census Bureau exclusive of linters

Private reporters had issued the following estimates :

Reporters	Condition	Precise Crop Indication	Acreage	Percent of Acreage Increase
Fenner & Beane ..	66.6	11,210,000	38,820,000	4
Gorho & Co ..	66.1	11,107,000	—	8.1
Commercial Appeal Memphis ..	68.1	—	—	4 to 5
National Ginner's Ass'n.	67.2	—	—	5.5
Clement Curtis & Co ..	66.8	11,480,000	—	—
Watkin's Bureau ..	—	—	—	3.6
Southern Product Co ..	—	—	—	3.4
Miss Giles ..	67.6	—	—	5.7
Journal of Commerce ..	64.4	—	—	—

There has hardly ever been such a unanimity as this season, on the part of the various reporting agencies, in the expression of opinion on the weather in the U.S.A. Cotton Belt. Undoubtedly the crop has had a very poor start. A good deal of replanting has been necessary, and conditions are 10 to 14 days late, due to the prevailing severe cold weather. From Texas it is reported that although plants are small they are making good taproots, which, of course, will be an asset during any coming droughts.

In spite of this unfavourable beginning there is no need to lose heart, as much depends on the weather during the next few months ; it will not only influence the growth of the plant but will also determine whether the boll-weevil is to propagate in large numbers or not. Unfortunately, good growing weather is also beneficial for the boll-weevil.

The May condition of the crop in 1920 was 62.4 per cent. The acreage then was 37,043,000, and the crop realized 13,366,000 bales. This year the acreage is estimated by outsiders to be from 3 per cent. to almost 6 per cent. more than last year, on an average a little more than 4 per cent. As last year's planted acreage was 38,709,000 we shall have this season more than 40,000,000 acres under cotton. From this, of course,

there is some abandonment to be deducted. The Department of Agriculture does not issue an estimated cotton acreage at this stage ; it will only be published on July 2nd.

In order to form an idea as to what the 65·6 per cent. condition means, one must consider what the yields per acre were during the last few years and then multiply by the probable new acreage. The yields were :

1920-21	1921-22	1922-23	1923-24
178·4	124·5	141·6	180·6

The average yield during the four years is 143·7 lbs., and on 39-40 million acreage the figures of the crop would be as follows :

	1920-21 basis	1921-22 basis	1922-23 basis	1923-24 basis	Average basis
39,000,000	14,555,048	10,157,940	11,558,188	10,655,648	11,780,596
40,000,000	14,928,870	10,418,410	11,849,872	10,928,870	12,025,105

Therefore, from a statistical point of view, it may be said that the present condition of 65·6 per cent. indicates a possible yield of between 11½ to 12 million bales if normal weather conditions prevail. Is this sufficient ?

The consumption of American cotton, according to the International Federation's statistics, was :

1921	1922	1923	1924 (6 months)
bales 10,024,000	bales 12,752,000	bales 12,666,000	bales 5,782,000

In view of the small carry-over which we shall have at the end of the season the cotton industry requires a bumper crop this year, but it is evident that we are not going to have it ; indeed, the statistical position is very serious, but statistics alone are a dangerous guide. The pessimism reigning at present in U.S.A. commerce, the stagnation of business usually accompanying the Presidential elections, and the political situation in Europe should be factors of equal importance in the formation of an opinion as to whether the cotton crop will suffice for the needs or not. The many efforts in other countries where cotton growing is a more profitable undertaking than in the U.S.A. will tend to increase the output, and "outside growths" are readily used as substitutes for American.

It is too early yet to form any decisive idea of the cotton situation, but it will be well to bear in mind the various facts as we progress in the season.

In spite of the repeated reports of heavy curtailment of cotton consumption in the United States, the reduction for the entire country is only 17 per cent. for the month of April. This percentage is distributed as follows: South, 10 per cent.; North, 23 per cent. Sixty-six per cent. of the total United States' consumption is in the South.<sup>1</sup>

World's carry-over, according to Hester, on August 1, 1923, was .. . . . .	.. ..	bales 2,896,000
Crop, 1923-4, U.S. Government estimate .. . .	.. ..	10,081,000
		<hr/>
World's spinners' takings, August 1 to May 30, 1924 ..		12,477,000
		10,176,000
		<hr/>
On the assumption that world's spinners' takings will be the same this year as last for the remaining two months .. . . . .	.. ..	2,801,000
		<hr/>
Balance left over August 1, 1924 ..	.. ..	1,883,000
		<hr/>
Balance left over August 1, 1924 ..	.. ..	968,000

This figure is probably too small, as the prospects of spinners' takings are not as large as last year, but the difference cannot be important.

Mr. Arthur Richmond Marsh, the able editor of *The Economic World*, New York, after reviewing in his Cotton Report of May 23, the various private estimates (which were more optimistic than the later report of the Department of Agriculture), concludes in the following words : " No one who is at all familiar with the world demand and supply situation for cotton, and especially American cotton, can have the slightest doubt as to what a crop of 11,250,000 bales or less in the United States this year will mean in the end in respect of the movement of the price of the commodity, irrespective of any conceivable curtailment of consumption by the American mills. If the present indications are realized in the event and the yield finally obtained proves to be no more than the quantity named, it is a foregone conclusion that the process of distribution can not be accomplished without a rise of the price to levels higher than any that have been attained since the end of the European War. It is true, of course, that the season is still young and that a considerable period of uninterrupted fine weather in the south might perhaps repair some part of the damage which the crop has suffered in the first stages of its growth. It is always to be remembered, however, that under boll-weevil conditions a belated crop is certain to be seriously damaged from this cause, no matter how promising its recuperation through propitious weather in the late spring and early summer may appear to be. In other words, it has now become the part of business prudence for all persons concerned with cotton to base their calculations for the future

\* U.S.A. May consumption of stock figures are given in footnote page 555.

upon the strong probability that the supply of American cotton during the coming cotton year will be even more inadequate to meet the world's needs in comfortable fashion than the supply during the year now coming to a close has been. This is a truth that seems as yet to be more clearly perceived in Europe and in Japan than it is in this country ; for while the majority of American cotton manufacturers continue to be 'saturated with pessimism,' as was said in this paper last week, foreign users of American cotton are taking cotton from this country upon a scale that threatens to leave us virtually bare of supplies long before the new crop is ready for market, while at the same time they are contracting for shipments of the new crop in ever increasing quantities."

The *Manchester Guardian Commercial* writes on the subject of the First Condition Report as follows :

The revised figures of acreage planted and harvested in 1923 were more of a surprise. The total acreage planted, which was originally estimated at 38,287,000, had been raised in December (by implication from the abandonment figures) to 39,226,000 acres, and it has now been reduced again to 38,709,000. The acreage harvested has also been reduced from the December estimate of 37,420,000 to 37,130,000 acres, a much smaller reduction, it may be noted, than in the acreage planted.

These reductions are explained by the fact that the yield per acre, which in December was estimated at 128.8 lbs. and had been raised by the March ginning figures to 129.4 lbs., has now been raised again to 130.6 lbs.

The general impression of the prospective increase of acreage is now tending towards smaller figures (the *Journal of Commerce* made it only 2.6 per cent.), but the average of the private reports is still over 4 per cent. If we allow only 3 per cent. on last year's revised figure of 38,709,000 this year's acreage would be 39,870,000 acres, to which must be added, say, 150,000 acres for Lower California (Mexico), or a total of just over 40,000,000 acres. The May par values for this year have not been published, but assuming that last year's hold good (and that is on the safe side) a condition of 65.6 per cent. means an average yield of 136 lbs. per acre. On 40,000,000 acres that would mean a present indication of about 11,400,000 bales, as against the corresponding figure of 12,000,000 at the same date last year. This, of course, is not a forecast, but simply an "arithmetical interpretation" of the *present* state of the crop. But it is enough to show that the remainder of this season must be better than last year and better than it has been so far if we are to escape disaster.

## **FIRST COTTON CROP CONDITION REPORT**

545

## FIRST U.S.A. COTTON CONDITION REPORT

(Comparative Table prepared by the Liverpool Cotton Service)

N.B.—Estimates are underlined.

**U.S. AMENDMENT TO CROP REPORT REGULATIONS.**

Senate Bill 2112, approved on May 3, 1924, provides as follows :

" That hereafter the Secretary of Agriculture shall discontinue acreage reports based upon farmers' intentions to plant cotton, and shall cause to be issued between July 1 and December 1 semi-monthly reports as to the condition, progress and probable production of cotton. No such report shall be approved and released by the Secretary of Agriculture until it shall have been passed upon by a cotton crop reporting committee or board consisting of five members or more to be designated by him, not less than three of which shall be supervisory field statisticians of the Department of Agriculture located in different sections of the cotton-growing States, experienced in estimating cotton production, and who have first-hand knowledge of the condition of the cotton crop based on recent field observations, and a majority of which committee or board shall be familiar with the methods and practices of producing cotton ; provided, that the foregoing reports as of the following dates, August 1, August 16, September 1, September 16, October 1, October 18, November 1, November 14, and December 1, shall be released simultaneously with the cotton ginning reports of the Bureau of the Census, relating to the same dates, the two reports to be issued from the same place at eleven o'clock antemeridian of the eighth day following that to which the respective reports relate. When such date of release falls on Sunday or a legal holiday the report shall be issued at eleven o'clock antemeridian of the next succeeding workday.

" Section 2.—All laws and parts of laws inconsistent with the provisions of this Act are hereby repealed to the extent of such inconsistency."

In order to conform to the requirements of this Act, the Crop Report Regulations issued in December last, governing the issuance of crop reports during 1924 are hereby amended as follows :

" A new report on the condition of cotton will be issued on July 21, 1924, at 11 a.m. This report will refer to July 16.

" The report listed in the Crop Report Regulations to be issued on August 1, 1924, at 11 a.m., will be published on Friday, August 8, at 11 a.m., and will relate to the condition of the cotton crop on August 1, instead of July 25 as heretofore.

" A new report on the condition of cotton will be issued on August 23, at 11 a.m., and will relate to August 16.

The report on the condition of the cotton crop listed to be issued on Tuesday, September 2, at 11 a.m., will be issued on Monday, September 8, at 11 a.m., and will refer to September 1, instead of August 25 as heretofore.

" A new report on the condition of cotton will be issued on September 23, at 11 a.m., and will refer to September 16.

" The report on the condition of the cotton crop listed to be issued on Thursday, October 2, will be issued on Wednesday, October 8, at 11 a.m., and will refer to October 1 instead of September 25 as heretofore.

" A new report on the condition of cotton will be issued on October 25, at 11 a.m., and will refer to October 18.

" The report on the condition of the cotton crop listed to be issued on Monday, November 3, at 11 a.m., will be issued on Saturday, November 8, at 11 a.m., and will refer to November 1.

"A new report on the condition of the cotton crop will be issued on November 21, at 11 a.m., and will refer to November 14.

"The report listed to be issued on December 12, at 2 p.m., on the preliminary production of cotton, will be issued on December 8, at 11 a.m., and will refer to December 1."

The foregoing changes in the dates of cotton reports will make it necessary to shift the dates of some of the reports on crops other than cotton as follows:

"The report listed to be issued on Friday, August 8, 1924, 2-15 p.m., on preliminary production of winter wheat and rye; stocks of oats and barley on farms; condition of corn, spring wheat, oats, barley, potatoes, sweet potatoes, tobacco, flax, rice, sugar beets, hay, apples, peaches, grain sorghums, peanuts, acreage and condition of buckwheat, will be issued on Thursday, August 7, 1924, at 2-15 p.m.

"The report listed to be made at 2-15 on Wednesday, October 8, 1924, on preliminary production of spring wheat, oats, barley, hay; condition of buckwheat, potatoes, sweet potatoes, tobacco, flax, rice, apples, pears, grain sorghums, sugar beets and peanuts, will be issued on Thursday, October 9, at 2-15 p.m."

NOTE.—The cotton reports as of May 25 and June 25 will be issued on June 2 and July 2 respectively, as shown in the original Crop Report Regulations.

## The Co-operative Cotton Marketing Organizations of America.

*By Mr. C. B. HOWARD, General Sales Manager of the American Cotton Growers' Exchange, Atlanta, Ga., U.S.A., originally intended for the Vienna International Cotton Congress.*

THE Co-operative Cotton Marketing Organizations of America are built upon a solid economic, legal and financial foundation. Two or three years ago the Congress of the United States enacted a law authorizing the formation of such Co-operative Associations. The Legislatures of the various Cotton States also enacted similar laws, and under these laws, each State Association is chartered to do business. Each of these Associations is a non-stock, non-capital, non-profit corporation. They are purely co-operative, the members joining together for mutual benefit. Each member signs a contract agreeing to deliver to his Association all the cotton he produces during a period of five years, and further agreeing to pay \$15·00 to \$25·00 per bale for liquidated damages, this amount varying in different States, should he violate his contract.

A term contract is necessary in order that the Association officials can approximate the amount of cotton which will be delivered each year, and proceed with confidence in making the necessary arrangements to handle it. Cotton, when delivered by the member to his Association, becomes the absolute property of the Association, to be disposed of by its officers as they see fit in accordance with the terms of their Charter.

In several States, test cases have been instituted against members who have violated their contract, and in every instance the Supreme Courts of these States have handed down decisions in favour of the Associations, upholding the contract as being absolutely legal and valid in every respect and requiring the member to carry out the provisions of his contract, or, in cases where he has sold his cotton elsewhere, to pay the liquidated damages.

#### OBJECTS AND POLICIES OF THE ASSOCIATIONS.

Our chief object is what we call "orderly marketing," that is, the gradual distribution of the sale of cotton practically throughout the cotton season as the spinner is in the market for it, instead of forcing the sale of great quantities during the Fall gathering season. Practically all the world's supply of cotton is produced in the Northern Hemisphere and is gathered about the same time. The American farmer, heretofore, has sold the great bulk of his cotton in three to four months. This apparently has been the case with cotton farmers in other parts of the world. The spinner cannot and does not sell his annual output of goods within three or four months and does not wish to buy his year's supply of cotton within such a short period. Therefore, with the farmer selling twice the amount of cotton, say in October, than the spinner wishes to buy, the price is forced down to a point at which investors or speculators think it cheap enough to buy and hold for an advance. The price does usually advance in the spring and the spinner pays the higher value, but the producer receives no benefit from this higher price as he has already disposed of his cotton. Gradual selling will tend to minimize the "Autumnal dips" and "Spring advances" and secure for the grower the average price of the season, rather than the low price of the Fall, at which time he has heretofore sold.

Again, you probably do not know or realize the number of intermediaries, under the old system, through whose hands cotton passed before finally reaching the mills. This is particularly so in America, beginning with the street buyer who buys the bale from the farmer's wagon, and going up the scale to the merchant from whom you buy. Under Co-operative Cotton Marketing methods, the bale will be taken from the farmer's wagon and sold direct through Sales Offices established by the Co-operatives, to the European spinner or the merchant supplying him, without the intervention of any intermediary in America, thus giving the farmer the benefit of these middlemen profits.

At present you receive cotton which is "Country Damaged," and this cannot be avoided under the present system. A cotton merchant cannot avoid buying cotton which has been left exposed to the weather and become damaged. In spite of all his care in picking before final shipment, a certain amount of damage will slip through, under the bagging and invisible, and under the bands which cannot be removed, and you suffer. Using cotton handled by the Co-operatives, you will soon forget the meaning of the words "Country Damage." Co-operative cotton is delivered by the members as soon as ginned, is immediately placed in warehouses and stays there until finally sold and shipped. It never has an opportunity to become damaged.

There are many other ways in which the Co-operatives serve an economic purpose, shorten the route from the farm to the mill, prevent

waste, minimize expenses, and thus net a greater return to the farmer for his cotton.

Through concentrating cotton in large quantities in modern, concrete, sprinklered warehouses, we save an enormous amount in storage and insurance charges compared to what the farmer has paid heretofore. On these warehouse receipts, we borrow money at the lowest rates of interest, a tremendous saving on what each farmer has previously paid individually. We stop the great economic waste which has hitherto taken place, caused by farmers leaving their cotton exposed to rain and weather until sometimes half the bale was rotten and worthless; we save the numerous samplings of bales caused by their passing through the hands of many buyers and handlers. We will gradually improve the methods of packing, of handling and also grade and staple through care in picking and seed selection, for every member receives from us a report of the grade and staple of his cotton, of which he was formerly usually ignorant, and now knows and realizes the premium he secures for good grades or a good staple. We expect to educate the grower to the advantage and need of standardizing staple by communities or sections so that all growers in a certain area will plant the same selected variety of seed, thus insuring a uniform and even staple, free of short, irregular and wasty fibres. Such seed selection would also make for more uniform fibre strength. We desire also to improve methods of ginning in order to eliminate nappy and gin-cut cotton which causes so much waste at the mill.

#### METHODS.

Each State Co-operative is organized as a unit and is a separate corporation. Twelve of these States are federated together as the American Cotton Growers' Exchange. This Exchange is an overhead organization to co-ordinate the activities of the various States and do for them, as a whole, many matters more economically and more efficiently than each State could do individually. The Exchange functions through a Board of Control, or Executive Committee, composed of the active Executive Official of each State. The most important of the Exchange Departments naturally, is that of Sales. This office acts for all of the States, with sales offices and connections practically everywhere in America and abroad, and doubtless many of the readers have used cotton the past two seasons which we have sold direct to European markets.

While, as stated above, we are incorporated without capital, we have a very real capital in the cotton delivered by our members, which at once becomes our capital. When our members deliver cotton we secure loans upon it and advance to the member 50 or 60 per cent. of its value. We sell gradually, and two or three times later in the season make further payments to members, using the utmost care, however, to retain large funds in hand until the end of the season when final settlement is made.

Each bale of cotton is placed in a pool according to its grade and staple—all Middling 28 mm. in one pool; all Middling 28/29 mm. in another pool, and so on. At the end of the season the average price at which we sold Middling 28 mm. is determined, and every member who delivered Middling 28 mm. is paid that price, less expenses. The same method applies with all other grades and staples.

Under our contract, we can retain 1 per cent. or 2 per cent. of amount

of gross sales as a working or reserve fund. This, with the cotton delivered us by our members, our comparatively small advances to them, our continuous sales and surplus funds kept on hand until final settlement, makes the Co-operatives absolutely safe financially.

We have the moral backing of our Government, and recently the President gave out a very strong interview endorsing and favouring us. Two years ago, the War Finance Corporation agreed to advance us fifty million dollars. Our standing was so good in regular banking circles, however, that we used almost none of the offered credit. We have borrowed some from the War Finance Corporation and also from the Federal Intermediate Banks, but secure most of our needs through regular banking channels.

When our cotton is received at concentrating centres, samples are drawn and sent to the main office of that particular State where they are classed and stapled by a class of expert classifiers. It is the policy of the Co-operatives to engage the most competent experts where technical skill and knowledge are required.

#### SPINNERS' INTEREST IN CO-OPERATIVE MARKETING OF COTTON.

Whatever may have been the case in the past, the interests of the spinner are now closely identified with those of the cotton grower.

A spinner does not wish the violent price fluctuations which we have so often seen in the past. On rapidly advancing markets he cannot sell his goods, and on severe breaks he suffers cancellations. Co-operative marketing, which is gradual marketing, tends to prevent these violent fluctuations and to stabilize prices. The mill will have a sufficient supply of cotton in the fall and also a sufficient supply in the spring when it wishes it, and at more even prices, instead of a plethora in the fall and a scarcity in the spring at widely varying values. The mill is even more interested, especially now under weevil conditions, in having a sufficient supply of cotton to keep its spindles and looms in operation, than it is in the price of cotton. In fact, it cares nothing about the price, provided it can pay the price and turn the cotton into yarn or cloth at a profit. The European spinner is even more interested in a large growth of cotton than is the American spinner. The increase in production of other than American does not promise to keep pace with the increase in the world's needs. The buying power of America is far greater than that of any other country and furnishes a market for the greater part of the output of American cotton mills. This demand will fill its requirements almost regardless of price, and certain other parts of the world where the buying power is limited, many of whom are your customers, will have to take what is left or go without. Therefore, it is especially to your interest that there should be more cotton produced, and for many years to come the only hope for it rests upon America. Under present cost conditions, it is absolutely necessary that the farmer secures a higher price or a greater part of what the mill pays for cotton than he has in the past. Averaging the price of cotton through the year may not cost the mill any more, but the farmer must get a larger part of what the mill actually pays. The grower and the spinner are the people chiefly interested in minimizing the cost of distribution of raw cotton. The planter only wishes to secure a price for his product which will pay him a reasonable profit above the cost of production and he is certainly entitled

to this. The spinner desires the price sufficiently low to come within the buying power of his customer and give the spinner a reasonable profit and he is certainly entitled to this. All costs of distribution between the grower and the spinner must in the final analysis come either out of the price received by the grower or be assumed by the ultimate consumer in the price he pays for goods. Too great a cost of distribution, if at the expense of the planter, makes cotton growing unprofitable and limits his production, while, if such cost is passed on to the consumer in the price of goods, the volume of his buying is curtailed. The cotton merchant cares not whether the price is high or low, he simply wishes to make a profit between the price he pays and the price at which he sells. The interests of the grower and the spinner are therefore the same in eliminating every possible cost between the grower and the spinner in order that the grower may secure a profit on his product and at the same time produce it at a price which will enable the mill to turn it into goods at a profit and within the buying limits of the consumer. The grower does not wish to force prices so high as to bring about a restricted consumption, nor should the spinner wish to force prices so low as to cause a restricted production.

There is only one man who buys raw cotton to keep—that is the spinner. Every other man who buys a bale of cotton does so with the expectation of re-selling it at a profit. Economically, and naturally, there should be as few of these re-sellers as possible. They are mostly barnacles on the cotton ship.

It is to the pecuniary interests of the European spinner, therefore, that he assist this great movement for the benefit of the cotton grower, for unless he gets better returns from his efforts in growing cotton, he will turn to growing other things and less cotton, and spindles will lack cotton in even greater degree than they do at present.

COTTON PRODUCED IN AND EXPORTED FROM THE UNITED STATES, AND ANNUAL AVERAGE PRICE PER POUND OF MIDDLING COTTON IN NEW YORK MARKET.  
(1910 to 1923.)

		Bales Produced in 500 lb. Bales	Bales Exported	Per Cent. Exported	Annual Average Price per lb. Middling Cotton in New York Market* (Cents)
1923	..	10,128,478	5,279,165	52.1	29.44
1922	..	9,761,817	6,118,818	62.6	21.17
1921	..	7,958,641	6,474,105	81.3	15.07
1920	..	13,439,008	6,159,182	45.8	38.89
1919	..	11,420,768	6,537,187	57.4	32.25
1918	..	12,040,582	4,112,840	34.1	31.70
1917	..	11,802,875	4,818,848	42.6	28.49
1916	..	11,449,930	7,029,721	61.3	14.45
1915	..	11,191,820	8,858,992	74.6	10.14
1914	..	10,184,980	6,820,485	39.1	11.18
1913	..	14,156,488	8,009,588	60.8	12.80
1912	..	13,708,421	10,694,472	78.0	11.52
1911	..	15,692,701	8,607,401	54.8	18.01
1910	..	11,808,616	7,087,299	61.1	15.11

\* As the cotton crop is gathered in the latter half of the year the influence of a given crop upon prices is manifest in the following year as well as in the year of production.

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AMERICAN COTTON CROP NOTES.

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Mr. C. T. Revere, of Munds & Winslow, New York, who is in the habit of writing for *The Manchester Guardian Commercial*, expresses the view that there will be a very large effective acreage and states that the weather so far has been favourable, as there has been no precipitation or floods such as have characterized the season during April and early May in the last few years. He admits that the temperatures have been low, and consequently it has been necessary to undertake considerable replanting. Mr. Revere evidently endorses a statement made by *The Savannah Morning News* to the effect that from five to ten times the amount of calcium arsenate is being used this year in comparison with last year. This, however, is not borne out by a warning issued by the U.S. Department of Agriculture; this well-organized Government Department states that many cotton farmers are placing too low an estimate upon the boll-weevil's destructive powers this season. It is true that the cold weather in January killed a 'great many' of the pests during the hibernating period, but the Department considers there will still be sufficient to do very serious damage in almost all sections. Each fall in the last eight years 30,000 weevils were placed in hibernation cages in Tallulah, Louisiana, and daily records of emergences are kept. The weather was exceptionally cool last March and April, but in spite of this it has been found that the percentage of weevils emerging this year is greater than was the case in either 1918 or 1919. As nearly as can be predicted the survival will probably be higher than in 1917, 1918, or 1919, and will fairly closely approach that of 1920. The farmer who does not prepare to fight the weevil now is merely gambling on the weather being unfavourable to the pest in July and August.

Messrs. Fenner & Beane, New Orleans, are not taking as optimistic a view as Mr. Revere. In their circular dated 8th May they state:

"Continuance of unseasonably low temperatures, cold rains over many parts of the belt, steady stream of replanting reports, daily shrinkage of New York's stock, increased tightness in the nears, high premium for spots and unexpectedly large spinners' takings were the uplifting influences."

"The head of the Government experimental station at Tallulah issued a bulletin saying that the survival of weevil is larger than its April report apparently led the farmers to expect, and that the emergence is very much like that of 1920. In that year insect damage to the crop averaged 73·5lbs. per acre, one of the largest on record."

*Messrs. R. L. Dixon & Bro., Dallas, Texas, cable us as follows :*

TEXAS. On account of the wet weather the amount of winter ploughing was considerably below normal. This is not necessarily disadvantageous in itself if followed by good planting and favourable weather during the summer, but if conditions become adverse lack of preparation to the ground does not give the plant the resisting power which would otherwise be the case.

Planting was delayed in the Rio Grande Valley, Central and South Central Texas by two or three weeks, but North Texas and Corpus Christi territory procured a favourable start.

The weather was about normal all over the State during the first half of May, although we received continual complaints of the temperature being too low. The increase in acreage is about 5 per cent.

OKLAHOMA. Ploughing in this State during the winter was also less than normal. The spring has been backward, but farmers are catching up with their work. In both States during the last seven days the weather has been favourable, except too cool nights, but the crop has made very satisfactory progress. Good rains have fallen over North Central Texas, which were much needed.

In Texas, except in the Panhandle, planting is nearly completed. Eighty per cent. is up and 26 per cent. chopped out. Plants are generally healthy but small. Stands fair to good. In the Panhandle 75 per cent. is planted.

In Oklahoma 79 per cent. is planted, 34 per cent. up. Stands poor to fair. Crop a week late.

In Texas and Oklahoma warm dry weather is required.

TEXAS. The weather continues entirely too cool. Damage not yet serious as although plant small is making good taproot. However, warm, sunny weather urgently needed. Two weeks hot weather would make wonderful difference.

June 16, 1924.

Week's weather very favourable. Want continued warm weather with some rain about 20th. Plant healthy but small and crop still generally late.

*A. Norden & Co., New York, report under May 15, 1924, as follows :*

Contrary to what might have been expected from the stories of mill curtailments, the April consumption report of the Census Bureau made quite a good showing; comparisons are brought down to April 30 in the following table in which the suggestions of the recent investigating commission have been incorporated, and it will be seen that there is no modification of the outlook for practical exhaustion of supplies in America before the new crop becomes available.

	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915
Mill Stocks, August 1	1,074	1,318	1,111	1,858	1,303	1,405	1,502	1,632	1,401	906
Public storage, etc ..	926	1,186	3,723	2,056	2,208	1,785	888	1,107	1,785	425
Invisible (estimated) ..	60	125	1,700	150	775	250	380	400	750	35
Total opening stocks ..	2,069	2,831	6,534	9,369	4,287	3,450	2,720	3,140	3,936	1,346
Census crop ..	10,159	9,720	7,978	13,271	11,326	11,906	11,248	11,384	11,068	15,906
Re-baled samples, etc ..	132	125	104	173	147	155	146	148	144	207
Imports, August-April ..	256	425	328	202	636	128	186	243	882	261
Total supply to April 30	12,610	18,110	14,044	17,200	16,396	15,689	14,250	14,895	15,530	17,740
Consumption and exports to April 30 ..	9,490	9,824	9,348	7,768	10,543	8,230	8,775	9,628	9,252	11,273
Stocks as of May 1 ..	3,120	3,786	5,596	9,446	5,858	7,406	5,475	5,267	6,278	6,465
Imports, May-July ..	?	70	24	9	47	69	81	45	89	108
Total supply, April-July	?	3,856	5,620	9,455	5,900	7,478	5,556	5,812	6,817	6,368
Cons. exp., May-July and burnt ..	?	2,150	2,816	2,034	2,447	3,178	2,105	2,493	3,186	2,680
Stocks, July 31, running count	?	1,706	2,804	6,521	3,453	4,800	3,451	2,814	3,181	8,888
Stocks, July 31, official count	?	2,003	2,831	6,534	3,363	4,287	3,450	2,720	3,140	3,936
Discrepancy ..	?	+357	+27	+13	+110	-18	-1	-94	-41	+18

Meanwhile, the middle of May has been reached with the crop making a poor start due to continuance of cold rainy weather, and with returns for the first condition report of the Bureau of Agriculture to be mailed only 10 days from to-day, it seems probable that a fairly low condition figure must be expected.

In this connection, we feel it necessary to call the attention of our friends abroad to recent developments that will have to be taken into consideration this summer and fall.

Under a law passed recently, the Bureau of Agriculture must publish cotton condition reports twice a month commencing July 16 and the ginning reports of the Census Bureau must be published simultaneously. The Bureau of Agriculture has adopted the following schedule for the publication of these reports :

June 2	..	..	(acreage and) condition as of May 25
July 2	..	..	" June 25
" 21	..	..	" July 16
Aug. 8	..	..	" Aug. 1
" 23	..	..	" 16
Sept. 8	..	..	" Sept. 1
" 23	..	..	" 16
Oct. 8	..	..	" Oct. 1
" 25	..	..	" 18
Nov. 8	..	..	" Nov. 1
" 21	..	..	" 14
Dec. 8 (presumably the final estimate of yield)	..	..	Dec. 1

It will be seen that with the exception of the reports of June 2 (to May 25) and July 2 (to June 25) all dates for collecting both condition and ginning figures have been so altered as to mean "scrapping" the comparative statistics of a long series of years and making a fresh start, with nothing with which to compare.

A more serious feature is the lack of funds to carry out these new plans, as no appropriation was made; it will be remembered that the very bad error in acreage figures a few years ago was blamed by the Agricultural Bureau on insufficient funds and the value of reports may again be impaired by the same cause.

*Messrs. Fenner & Beane, of New Orleans, report as follows, under date 16th May :*

U.S.A. Consumption for April\* totalled 480,000 bales compared with 484,000 in March, and 577,000 in April a year ago. Consumption of lint for nine months aggregates 4,968,000 bales compared with 5,537,000 for the same period last year. Stocks held by mills were given as 1,328,000 compared with 1,878,000 by the Census Bureau.

The consumption was considered large in view of the curtailment reports, and is accounted for largely by the fact that southern mills have actually increased the number of spindles in operation and had 16,113,000 in use during April, compared with 16,073,000 a year ago.

There are approximately 2,400,000 bales of lint and linters in the United States compared with 3,600,000 a year ago. Of this approximately 1,450,000 are held by mills, if the Census figures on mill stocks are correct, compared with 2,057,000 last year.

Even with drastic curtailment American mills should consume at least 1,000,000 to 1,200,000 bales of lint and linters between now and the end of July, while another 400,000 is almost certain to go abroad.

*Geo. H. McFadden & Bro. state in their crop letter N. 10 :*

RESUME : The unfavourable weather noted in our previous letters has continued through the past week. There has been too much wet weather and night temperatures have been too low in all sections of the Cotton Belt. Warm dry weather is badly needed.

Planting is now completed, but some replanting may still be necessary.

\* The May consumption figures of the U.S.A. published on going to press, show a considerable reduction in the consumption. Exclusive of linters they are 414,000 bales against 480,000 bales in April and 621,000 bales in May of last year.

Stocks in the hands of manufacturers amount to 1,158,000 bales against 1,328,000 bales in the previous month and 1,621,000 bales a year ago. In outside warehouses the stocks were 1,127,000 bales against 1,512,000 last month and 1,580,000 bales a year ago.

The active spindles during the month totalled 30,498,000 against 31,872,000 in April and 35,390,000 in May of last year.

The consumption of linters in the past month was 42,000 bales against 42,000 bales in April and 55,000 bales in May last year. Stocks at consuming establishments amount to 122,000 bales against 180,000 bales in the previous month and 164,000 bales a year ago, and in outside warehouses 74,000 bales against 88,000 bales and 48,000 bales.

The exports for the month of May are given as 326,000 bales against 321,000 last month and 160,000 bales last year.

Chopping made rather poor progress on account of the wet weather, but probably averages 60 to 80 per cent. completed. Cultivation is fair to good with complaints of grassy fields more numerous than heretofore. Stands are not wholly satisfactory, but are somewhat better than a week ago. The plant is small but generally healthy, although there are some reports of poor colour and of plants dying.

Boll weevil have appeared in practically all sections, but have done little damage yet. There are reports of lice from many sections, and of cut worms and grasshoppers from west of the Mississippi River.

The season is from two to three weeks late. Acreage increase is probably between 4 and 5 per cent., making the total acreage being planted this year about 40 million acres. There is considerable increase in the use of fertilisers. Labour is adequate for present needs, except for shortages in Texas and Oklahoma.

## America's Interest in Foreign Cotton

The Department of Agriculture, through the Foreign Section of the Bureau of Agricultural Economics, has compiled the latest available information regarding the cotton production in foreign countries "*as being of interest to cotton producers in the U.S.A.*"

The following is the information published at the time of going to press, for which reason we were unable to place it under the "Cotton Growing" chapter.

EGYPT. Cotton sowing is completed in both Upper and Lower Egypt. Germination has been good and there has been little resowing. The young plants are in good condition and more advanced than at this time last year. Weather conditions have been favourable on the whole since the beginning of the season with the exception of low temperatures during the last two weeks in April. Reports indicate that there has been a sufficient amount of water for irrigation.

An increase of about 10 per cent. over last year's cotton area is expected in Egypt, according to official and unofficial reports. This would mean an area of about 1,800,000 acres. Upper Egypt and the northern districts of the Delta will probably show the largest increases in area. Less Sakellaridis cotton has been planted in Lower Egypt than last year, while areas devoted to the Zagora and Pilion varieties have been increased.

RUSSIA. Area planted to cotton in Russian Turkestan this season is 705,000 acres against 405,000 acres in 1923, according to a radiogram from the International Institute of Agriculture in Rome. Turkestan cotton area is about 70 per cent. of the total area to be planted to cotton in all Russia, according to official and unofficial estimates received. Reports indicate that there was enough seed for planting in all sections and sufficient water for irrigation in Turkestan and Transcaucasia.

BRAZIL. Crop conditions are good in São Paulo, where the crop is now

being harvested, reports the Brazilian Federal Cotton Service, according to Consul-General Gaulin. The situation in Northern Brazil is not so promising, but picking will not begin until August in that section.

MEXICO. Large increases in area and production are expected this season in Mexico, according to unofficial reports. Conditions are reported to be unusually good in the Laguna district and a large area is being planted. Acreage has been increased in Sonora and the Juarez Valley. Dry weather has hindered the crop in some unimportant sections.

ARGENTINA. Cotton crop conditions are reported to be very good in Argentina. Conditions are excellent in Chaco, the most important cotton-producing State. Picking is in progress, but no official estimate of production has been issued. A large crop is expected, however, due to a large increase in area planted. According to a report issued by the Ministry of Agriculture, 154,800 acres were sown during the 1923-24 season, compared with 56,500 acres in 1922-23.

#### COTTON AREA IN FOREIGN COUNTRIES, 1922-23 and 1923-24

Country	1922-23				1923-24	
	Acres	Acre	Acres	Acre	Acres	Acre
India	..	..	21,702,000	..	23,088,000	
Egypt	..	..	1,868,100	..	1,618,500	
Brazil	..	..	1,512,000	..	1,905,800	
Mexico	..	..	242,000	..	279,000	
Chosen (Korea)	..	..	370,000	..	378,000	
Uganda	..	..	334,000	..	419,000	
Anglo-Egyptian Sudan	..	..	--	..	101,000	
Argentina	..	..	56,500	..	154,800	

Compiled from official sources and the International Institute of Agriculture, except as otherwise stated.

From an unofficial source.

#### THE 1923-24 COTTON CROP OF LOWER CALIFORNIA, OLD MEXICO.

Reporting to Washington on the 1923-24 cotton crop of Lower California, Old Mexico, United States Consul H. C. Von Struve, at Mexicali, states that returns from local ginneries in that district show a total of 89,100 running bales to have been ginned during the period from August 1, 1923, to and including April 30, 1924, this quantity comparing with 56,045 running bales ginned during the corresponding period last year. On April 30 this year all the ginneries except one had closed for the season, and only a very few bales of cotton remained to be ginned.

Declared exports of cotton at the Mexicali consulate for the season are 27,496 bales of 500 lbs. each, compared with 50,189 bales for the corresponding period last year. The records of the United States customs house at Calexico show that during the present season there have been entered in transit to Mexico 55,582 bales of 500 lbs. each. That figure is the most accurate obtainable for the cotton shipped from this district to other parts of Mexico, as all of it has to pass through the United States in transit. There are about 5,000 bales left, practically all of which is destined for shipment to the United States. (*The Economic World.*)



## Egyptian Cotton.

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### Egyptian Minister's Visit to Manchester.

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The Manchester Cotton Association and the Manchester Ship Canal Co. entertained on the 4th June His Excellency AZIZ IZZET PACHA, the Egyptian Minister to Great Britain.

Several speeches were made by those representing the Egyptian cotton interests of Lancashire, a résumé of which is of general interest.

Mr. JOHN G. PEEL, of Messrs. Peel & Co., Alexandria and Manchester, whose firm has been established in Egypt since that country became a recognized source of cotton supply, after dwelling on the fact that Lancashire has always been pre-eminent in fine counts and that for many years Egypt has supplied just the right kind of cotton for the trade, emphasized the point that Lancashire is to some extent dependent upon Egypt for her supply of suitable cotton and Egypt is dependent upon Lancashire for a part at least of the prosperity which she enjoys as a result of good prices now realizable for the crop which is her chief product. He continued: "I therefore think that we are entitled to offer a word of advice on a subject which becomes our mutual interest. There has been a tendency in Egypt lately, and it seems a growing one, to develop the production of what we may term her second class of cotton at the expense of her best. It is natural enough that this should be so in view of its superior productivity and the relatively high prices which this cotton has fetched at times lately, but it must not be forgotten that though this cotton is good enough in its way it is by no means a monopoly of Egypt, and with more bountiful crops in other countries there may easily be a glut of this sort and a corresponding slump in the price, whereas the long-stapled cotton may be in very short supply to the disadvantage of both Egypt and Lancashire. There are two or three points which I ought to bring to your notice. The figures of spindles spinning Egyptian cotton on January 31, 1924, were rather over 20,000,000 in Great Britain, against rather under 6,000,000 for the Continent of Europe. Plain figures are apt to be misleading, as, on this basis, England would seem to need three times as much cotton as the rest of Europe, whereas up to the end of May the figures of shipments to England were about 400,000 bales, against 320,000 to the Continent,

this being accounted for, I suppose, by the finer counts spun here. But the fact remains that, even allowing for the quantity shipped to the United States, England will take during this season probably quite half of the Egyptian crop. As Manchester men we may be proud that rather over 50 per cent. of the shipments to England from Egypt come direct to the Port of Manchester."

Mr. WM. HOWARTH, J.P., Chairman of the Executive Board of the Fine Cotton Spinners' & Doublers' Associations, Ltd., gave an historic review and showed the great advances which present civilization owed to Egypt, and reminded those present that Great Britain had, as one of the partners in the administration of Egypt, contributed a fair share in protecting and improving the economic, administrative and agricultural structure of Egypt. He complained that there had been a mixture of types in Egyptian cotton during the last few years, and he produced two certificates of the Manchester Chamber of Commerce Testing House, dated 6th and 19th May, which showed an excess of moisture in one instance of 4·05 per cent., and in another of 3·24 per cent.; this ought never to have occurred, said Mr. Howarth, and though his own remedy was never to buy again from houses which supplied excessively damp cotton, yet he blamed the Egyptians for sending such lots.

The Minister did not reply to these specific points, but used the opportunity for making political propaganda. He called attention to "the sad history of my country," and said that more than 65 solemn promises and pledges had been given by successive British Governments and responsible statesmen to evacuate Egypt and respect its territorial integrity. The speaker said: "Egypt should be perfectly unhampered and unrestricted by those who intervened, doubtless, as they claimed and promised with solemn pledges, to help her, and be left free to develop within her own natural and rightful geographical limits. By the expression 'natural geographical limits' I mean the *whole* Nile Valley."

The General Committee of the Federation of Master Cotton Spinners' Associations, Ltd., Manchester, discussed two days later the present political position in the Sudan, and especially its bearing on the possibilities of the country as a cotton-growing area. An intimation had been received from The Empire Cotton Growing Corporation that the Prime Minister had been requested to receive a deputation on the 23rd June, consisting of representatives of the Empire Cotton Growing Corporation and other interested organizations to urge that in negotiations with the Prime Minister of Egypt on the status of the Sudan, British interests, which are vitally concerned in the maintenance and extension of the area of Egyptian cotton cultivation, should be adequately safeguarded. It was decided that the Prime Minister's attention should be directed to the views of Lancashire's chief industry in order that there may be no risk of a shortage of cotton suitable for spinning the finest counts, and an agreement should be reached with Egypt whereby the area under cultivation in the Gezira may be extended to the full amount compatible with the storage capacity of the Makwar dam. Mr. Fred Holroyd, J.P., President of the English Federation of Master Cotton Spinners' Association, Ltd., and Vice-President of the International Cotton Federation, will represent the Federation on this deputation.

*C. Tattersall & Co., 206, Royal Exchange, Manchester, representing  
Peel & Co., Alexandria, report under date 10th June, 1924:*

Since our last report two matters stand out prominently.

The first is the large number of American cotton using spindles that have turned on to the Egyptian growths, and the second the big change-over of Egyptian "futures" from premiums to huge discounts for months ahead. It may be said that the former is largely the cause of the latter, since the American spinners, being accustomed to buying their cotton on call, have mostly adopted this system in buying Egyptian cotton, and, of course, have been encouraged in it by the Liverpool interests, since it means for them a commission on futures in addition to their usual brokerage.

Whatever may be the merits of buying on call with a crop of 10 millions and more bales, this system, applied to a crop of one million bales, can only be described as pernicious, and the effect of the discounts is already being felt in a much lessened demand for the finished material, the buyers, like the buyers of American, now hesitating to book far ahead, except on a basis of the greatest discount quoted.

The trade has still to fix the price of a large quantity of cotton bought on call, and if they should suffer materially through it they have only themselves to blame, since they have been literally "asking for it."

The Egyptians generally appear to be satisfied with the prices obtained for this season's crop, and are believed to have increased the acreage materially for next season, when it is expected (subject of course to normal conditions) the yield may approximate  $7\frac{1}{2}$  million cantars. As to the quality there are some misgivings, owing to the reports that the former care in seed selection has been largely abandoned, and increased sowings of the Upper Egyptian varieties are likely to have taken place at the expense of Sakellaridis.

The situation of Egyptian cotton is becoming almost identical with American in so far as the greatest difficulty exists of finding in Egyptian or European markets any quantity of even-running lots ; what is left of the crop consists of a conglomeration of odds and ends, out of which it is very difficult for buyers to get repeats of the qualities they are at present using.

*Reinhart & Co., Alexandria, May 29, 1924 :*

Some substantial purchases of Continental spinners for new crop shipment have been covered in November futures. Very few of the Egyptian farmers are selling their new crop cotton so early in the season, and as the speculative element was not powerful enough to absorb these purchases November showed unusual strength. The opinion is however gaining ground that, compared to Americans, new crop Sakellaridis is too high at present.

In consequence of the foregoing it would seem that a reversed movement might shortly set in, i.e., that the parity between the two positions would widen again in the near future.

## EGYPTIAN COTTON

561

Season	Receipts at Alexandria in Cantars			Stocks			Season	Visible Supply
	This week	Since 1 Sep.	Total crop	England	Alexandria	Including carry-over on 1st Sept.		
1923-24	C/ 21,720	6,330,070	—	Bls. —	C/ 803,802	C/ 803,000	1924	Bls. —
1922-23	.. 3,004	6,501,256	6,713,312	.. 142,242	.. 1,541,006	.. 1,832,000	1923	.. 373,000
1921-22	.. 29,787	4,938,455	5,358,284	.. 100,870	.. 2,012,516	.. 1,895,000	1922	.. 421,780
1920-21	.. 25,846	4,206,207	5,030,178	.. 67,790	.. 1,964,712	.. 898,000	1921	.. 957,040
1919-20	.. 1,716	5,547,897	5,571,082	.. 70,490	.. 788,003	.. 448,000	1920	.. 211,410
1918-19	16,617	4,712,149	4,820,600	.. 32,770	.. 2,607,100	.. 1,100,800	1919	.. 380,990
<hr/>								
Exports			England	United States	Continent	Total		
<hr/>			<hr/>				<hr/>	
This week	..	..	Bls. 5,543	Bls. 100	Bls. 5,581	Bales 11,174	Cantars 84,455	
Against same week 1923	..	..	.. 4,219	.. 1,071	.. 4,415	.. 9,705	78,836	
.. .. 1922	..	..	.. 8,235	.. 662	.. 8,984	.. 12,881	97,575	
.. .. 1921	..	..	.. 2,286	.. 750	.. 3,506	.. 6,602	50,502	
.. .. 1920	..	..	.. 642	.. 2,017	.. 414	.. 8,073	23,273	
.. .. 1919	..	..	.. —	.. —	.. —	.. —	—	
<hr/>			<hr/>				<hr/>	
Since 1st September, 1923	..	Bls. 392,843	Bls. 102,705	Bls. 828,851	824,199	8,241,677		
.. .. 1922	..	.. 372,630	.. 100,079	.. 269,857	.. 841,569	.. 6,379,250		
.. .. 1921	..	.. 280,865	.. 154,700	.. 190,106	.. 625,737	.. 4,780,939		
.. .. 1920	..	.. 178,711	.. 44,281	.. 130,102	.. 858,124	.. 5,698,757		
.. .. 1919	..	.. 893,573	.. 244,458	.. 120,474	.. 688,505	.. 5,202,204		
.. .. 1918	..	.. 285,842	.. 48,260	.. 102,157	.. 430,265	.. 3,211,789		

Exports during the week under review have been very large, amounting to 162,375 cantars, bringing our stock down to 1,029,939 cantars. The supply during the summer will be quite inadequate, and great difficulty is experienced in finding certain qualities.

## EXPORTS OF COTTON UP TO END OF MARCH CLASSIFIED BY COUNTRIES OF DESTINATION.

(Quantities expressed in Cantars.)

*Source of information : Monthly Summary of the Foreign Trade of Egypt.*

Countries of Destination	Total to Date		
	1921-22	1922-23	1923-24
United Kingdom .. .. ..	1,783,816	2,490,703	2,581,660
British India .. .. ..	1,421	693	10,988
Austria .. .. ..	16,005	4,882	27,685
Belgium .. .. ..	12,578	24,817	31,992
China .. .. ..	3,100	3,292	—
Czecho-Slovakia .. .. ..	41,595	10,403	97,400
France .. .. ..	404,178	550,223	762,490
Germany .. .. ..	178,257	103,226	220,018
Greece .. .. ..	3,386	6,863	4,818
Holland .. .. ..	11,871	22,208	28,425
Italy .. .. ..	131,077	282,904	388,895
Japan .. .. ..	104,477	226,578	184,127
Palestine .. .. ..	2,972	2,438	289
Poland .. .. ..	10,844	25,714	29,498
Portugal .. .. ..	5,455	4,855	5,592
Spain .. .. ..	101,708	107,485	172,024
Sweden .. .. ..	14,940	4,754	2,078
Switzerland .. .. ..	116,823	164,468	202,976
Syria .. .. ..	455	180	1
United States of America .. .. ..	1,187,838	1,485,215	716,850
Other countries .. .. ..	1,755	8,874	8,944
Total .. .. ..	4,084,701	5,610,172	5,455,690



# East Indian Cotton.

## CROP FORECASTS (All-India)

### FINAL GOVERNMENT ESTIMATE OF THE COTTON CROP OF INDIA

PROVINCES AND STATES	1923-24 (PROVISIONAL ESTIMATES)		1922-23 (FINAL FIGURES)*		1921-22 (FINAL FIGURES)*	
	Area (1,000 acres)	Yield (1,000 bales)	Area (1,000 acres)	Yield (1,000 bales)	Area (1,000 acres)	Yield (1,000 bales)
Bombay (a) .. ..	6,291	1,127	5,817	1,828	4,076	1,187
Central Provinces and Berar ..	4,901	1,020	4,857	1,040	4,414	1,127
Madras (b) .. ..	2,669	480	2,848	481	1,803	341
Punjab (b) .. ..	1,914	628	1,894	897	1,289	296
United Provinces (b) .. ..	652	213	652	182	828	244
Burma .. .. ..	207	46	284	45	825	40
Bihar and Orissa .. ..	81	16	80	15	79	15
Bengal (b) .. ..	71	21	72	17	65	15
Ajmer-Merwara .. ..	41	13	86	13	26	12
Assam .. .. ..	89	14	40	14	40	13
North-West Frontier Province ..	28	4	15	8	15	3
Delhi .. .. ..	8	1	2	1	2	(d)
Hyderabad .. .. ..	8,500	1,079	8,818	1,116	2,914	870
Central India (c) .. ..	1,041	187	889	181	714	158
Baroda .. .. ..	657	76	585	116	600	85
Gwalior .. .. ..	500	60	528	74	855	46
Rajputana .. .. ..	824	78	802	76	207	68
Mysore .. .. ..	84	13	83	24	50	15
Total .. ..	28,088	3,073	21,792	3,073	18,451	4,485

\* These are revised estimates as finally adjusted by provincial authorities.

(a) Including Sind and Indian States. (b) Including Indian States. (c) Excluding Gwalior.

(d) 300 bales. NOTE.—A bale contains 400 lbs. of cleaned cotton.

### EXPORTS FROM 1ST SEPTEMBER, 1923, TO 15TH MAY, 1924 AND CORRESPONDING PERIOD IN LAST FOUR YEARS.

(Supplied by The East India Cotton Association, Ltd., Bombay.)

	1923-24	1922-23	1921-22	1920-21	1919-20
United Kingdom ..	158,857	108,770	466,074	876,995	480,876
Continent ..	804,068	558,458			
China ..	177,289	818,036	820,095	188,042	98,805
Japan ..	1,120,710	1,413,888	1,028,088	676,994	1,299,684
Coast Ports ..	47,070*	48,147	80,469	15,884	12,750
Total .. ..	2,287,994	2,484,289	1,844,721	1,262,865	1,842,115

\* Including 22,923 bales for U.S.A.



## Brazilian Cotton.

*Northern district.* After heavy rains a large portion of the annual cotton (Matta) had to be re-planted ; the beginning is not starting under beneficial auspices.

*São Paulo.* The crop is moving well and promises to be large. Prices in the interior are high, especially in sections that are not very distant from the city, as early deliveries are at a premium. Complaints are made as to degeneration of fibre owing to absence of seed selection, and the São Paulo Exchange is being urged to introduce classification as to length of staple.

*Shipments to abroad* from 1st September to 10th May, 1924 : from Santos, 10,516 bales ; from Rio, 5,459 bales ; from Pernambuco, 10,992 bales ; no information available as to shipments from Ceará, Maranhão and Pará.

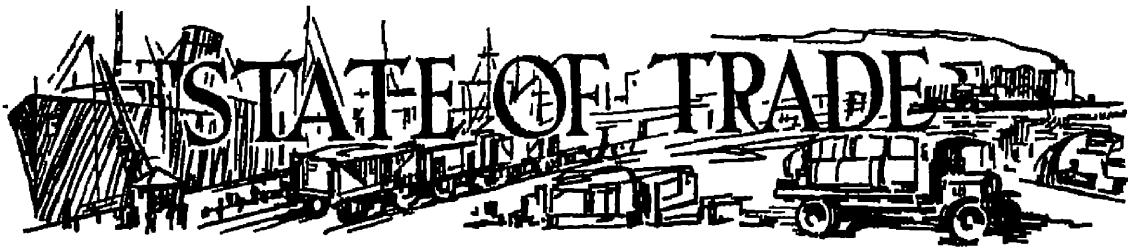
*F. Albrecht & Co., Liverpool, report under date 5th June, 1924 :*

With trade leaving much to be desired, and spinners both here and abroad keeping off the market until forced to buy small quantities for immediate consumption, business in Brazil cotton has dragged along very slowly during the last three months. Apart from all other questions, the difficulty in finding better grades and staples among the reduced stocks in Liverpool would prevent a large turnover ; and as things are at present, with both stocks and demand at a minimum, transactions are on a very small scale.

On the 31st May, Brazil stocks amounted to 25,240 bales, as against 44,000 last season and 68,000 in 1922. The most interesting news from Brazil with regard to cotton concerns the floods which have occurred in the Northern Provinces. Great damage has been done to railway lines and roads, bridges have been swept away, villages and small towns inundated, and many people drowned. The interruption of the railway traffic is, of course, very important and has occasioned considerable disorganization. The damage to the cotton crop is, we understand, not of very great moment, and with the subsidence of the waters it may be found that the ground has actually benefited and will be in better condition to withstand the trials of the dry season.

Generally speaking, crop conditions are not unfavourable in the North, but it is still too early to form even an approximate opinion regarding the probable extent of the yield. The prices demanded for cotton in Brazil are remarkable, in some cases being from 4d. to 5d. above those prevailing on this side. This means, of course, that the Brazilian mills are struggling to secure the remnant of last season's cotton and are willing to pay fancy figures in order to obtain supplies.

We have as yet no indication of the prices demanded for new crop cotton. It is, however, certain that the Southern mills will enter the market early and be willing to pay full prices for early deliveries. The demand for new cotton on this side is not greatly in evidence. A certain amount of tentative inquiry is noticeable, but buyers are not actually in the market, and, of course, little encouragement can be given them just now with regard to prices.



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## Reports from Affiliated Associations and other sources.

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### AUSTRIA.

**SPINNING.** The wages communicated in the last issue of the INTERNATIONAL COTTON BULLETIN have not been modified to any degree. The official index figures of the cost of living have been increased during the month of May by about 2 per cent., but this has not affected the wages because only changes of 5 per cent. are considered according to the collective agreement arrived at on the 1st January, 1924. On the other hand, employers have to contribute larger amounts for the Sick and Unemployment Insurance.

The sales of yarns for March to May inclusive have not been satisfactory, and have not exceeded on an average  $1\frac{1}{2}$  million crowns per month ; this unfavourable position is mainly due to the difficult financial situation in Austria as well as of those States to which we are in the habit of sending cotton yarns. The financial crisis under which Austria is suffering since the beginning of April has latterly been intensified. The result is an extraordinary prolongation of all payments, and this compels the industry to employ large additional capital. The obtaining of credits for higher working capital has become not only extremely difficult but also very costly, amounting to almost 25 per cent. per annum.

In consequence of these conditions some spinning mills have been forced to curtail their working hours, and in many cases only three days have been worked each week during the last month.

The future state of trade depends entirely on the developments which the money and credit conditions will assume. As the Government has the firm intention of setting aside large sums, under comparatively favourable terms for the purpose of industrial and commercial credits, the possibility exists that the present financial crisis will become less acute than at present. Such a step, however, would not solve entirely the difficulty, because we are dependent, to a great extent, on the method of payment in the neighbouring States which are our yarn buyers ; this statement applies especially to Hungary, where strict regulations on money exports exist, in consequence of which it is almost impossible to reduce the existing debts in our country. In Roumania the conditions are also unfavourable. To these difficulties we must add further the impediments which the Austrian yarn export trade has to meet through the limitations of imports and prohibitive tariffs on the part of other countries. Our exports to Hungary, Germany and Czecho-Slovakia are suffering particularly on this account.

WEAVING. As regards wages, the same remarks apply here as in spinning. The commercial situation has developed in exactly the same direction. It is true that there is a greater chance of selling stock goods, but sales are being rendered difficult through the slow mode of payment of accounts. Prices are also unsatisfactory. In ready-made goods the home-trade turnover is larger than the export, but even here we are meeting severe competition from abroad which is facilitated by the low import duties. The expansion of export is partly dependent on the change in the method of manufacture, as it can only be achieved by supplying finer goods. Although the desire for attaining this end is present, yet the difficulty of obtaining the necessary increased capital is acting as a great impediment. Nevertheless, the Austrian cotton-weaving section has great possibilities of development, especially as the looms existing at present, namely 14,000, hardly suffice to cover the home requirements, and cannot on any account use all the yarn produced in Austria.

*The following is the original report in German of the Austrian Master Cotton Spinners' and Manufacturers' Association.*

#### SPINNEREI.

Die in unserem letzten Berichte veröffentlichten, in Nr. 7 des COTTON BULLETIN vom März 1924 mitgeteilten Arbeiterlöhne, haben seither keine nennenswerte Veränderung erfahren. Die amtlichen Indexziffern haben wohl im Monate Mai eine 2%ige Steigerung des Lebenskostenaufwandes angezeigt, doch hat sich dieselbe auf die Löhne nicht ausgewirkt, weil nach dem Kollektivvertrag, der seit 1. Jänner 1924 in Kraft ist, nur Änderungen von 5% und darüber zu berücksichtigen sind. Dagegen haben die sozialen Lasten eine weitere Steigerung dadurch erfahren, dass die Beitragsleistungen der Unternehmer für die Kranken- und Arbeitslosenversicherung erhöht wurden.

Der Garnabsatz in den Monaten März bis einschließlich Mai war wenig befriedigend und hat im Durchschnitte 1,500,000 — pro Monat nicht überschritten. Diese ungünstige Geschäftslage ist hauptsächlich auf die schwierigen Geldverhältnisse, sowohl in Oesterreich selbst, als in jenen Staaten, welche für die Aufnahme von Baumwollgarnen aus Oesterreich in Frage kommen, zurückzuführen. Die Finanzkrise, unter welcher die österreichische Wirtschaft seit anfangs April leidet, hat seither eine empfindliche Verschärfung erfahren. Die Folge davon ist vor allem eine ausserordentliche Verlangsamung des Zahlungsverkehrs, welcher die Industrie zwingt, sehr bedeutende Kapitalien in ihren Forderungen bei der Kundschaft festzulegen. Andererseits ist die Beschaffung von erhöhten Betriebskrediten nicht nur schwerer geworden, sondern auch mit sehr bedeutenden Kosten verbunden. Die Zinsen- und Spesenbelastung für einen Kredit bei österr. Banken ist mit ca. 25% p.a. anzunehmen.

Durch diese Immobilisierung ihrer Betriebskapitalien sind die Spinnereien zum Teil gezwungen die Arbeitszeit einzuschränken und es wird daher in einer Reihe von Betrieben seit ungefähr 4 Wochen nur mehr an 3 Tagen in der Woche gearbeitet.

Die weitere Gestaltung des Garngeschäftes hängt vor allem von der Entwicklung ab, welche die Geld- und Kreditverhältnisse nehmen werden. Da bei der Regierung die ernste Absicht besteht, grössere Mittel zu relativ günstigen Bedingungen für Betriebskredite an Industrie und

Handel zur Verfugung zu stellen, besteht immerhin die Möglichkeit, dass die gegenwärtige Krise eine Milderung erfährt ; allerdings wird damit allein die Lage noch nicht saniert sein, weil auch das Zahlungswesen in den Nachbarstaaten, welche als Garnkonsumenten in Frage kommen, sehr im argen liegt. Dies gilt vor allem für Ungarn, woselbst sehr strenge Devisenverordnungen bestehen, die eine Abdeckung der bestehenden Zahlungsverpflichtungen fast unmöglich machen. Auch in Rumänien liegen die Verhältnisse ungünstig ; zu diesen Schwierigkeiten kommen noch die Hemmungen, welche dem österreichischen Garnexport durch Einfuhrbeschränkungen und Prohibitivzölle bereitet werden. Darunter leidet namentlich der Export nach Ungarn, Deutschland und der Tschechoslowakei.

#### WEBEREI.

Bezüglich der Arbeitslöhne gilt dasselbe, wie hinsichtlich der Baumwollspinnerei. Auch die Geschäftslage hat sich in derselben Richtung entwickelt, zwar besteht die Absatzmöglichkeit für fertige Baumwollwaren, doch ist der Verkauf durch die schleppende Zahlungsweise der Kundenschaft erschwert. Auch die Preislage ist eine unbefriedigende. Im Warengeschäft überwiegt der Inlandsabsatz gegenüber dem Export, doch macht sich hiebei die ausländische Konkurrenz, welche durch die abnormal niedrigen Webwarenzölle gefördert wird, in empfindlicher Weise fühlbar. Die Ausdehnung des Exports ist zum Teil an eine Umstellung der Produktion auf Qualitätsware gebunden und es besteht daher allgemein das Bestreben, dieser Notwendigkeit, soweit als möglich, Rechnung zu tragen. Allerdings wird dieses anerkennenswerte Bestreben durch die Schwierigkeiten, welche sich augenblicklich der Beschaffung des erforderlichen Investitionskapitals entgegenstellen, sehr gehemmt. Trotzdem bestehen für die österr. Baumwollweberei Entwicklungsmöglichkeiten, zumal die verfügbaren ca. 14,000 Webstühle kaum genügen, um den heimischen Bedarf zu decken, keinesfalls aber um die österr. Garnproduktion aufzunehmen.

#### BELGIUM.

Owing to the fluctuations of exchange, which are given in the following French original article, business is precarious and a number of manufacturers complain of a lack of orders.

Wages have risen another 5 per cent., so that since last March there has been an increase of 30 per cent., but it is anticipated there will be a 5 per cent. reduction again.

The Regent of Ethiopia recently visited Ghent when Count Jean de Hemptinne, in the name of the International Cotton Federation, drew his attention to the necessity of cotton growing in Ethiopia.

Les fluctuations du change durant le dernier trimestre ont occasionné un ralentissement sérieux dans les affaires. Nous donnons ci-dessous un aperçu des cours côtés pour la £ et le \$ à diverses dates :

Dates		Cours de la £	Cours du \$
10 mars 1924	..	187·50	82·50
28 avril 1924	..	74·73	17·00
28 mai 1924	..	95·00	21·70

De pareils mouvements dans le change provoquent un malaise dont souffrent principalement les industries qui, comme la nôtre, dépendent de

l'étranger pour l'importation de leurs matières premières. Le change est influencé en grande partie par des facteurs psychologiques sans rapports avec la situation financière et monétaire du pays qui devrait être l'élément déterminant de la valeur de notre monnaie. L'instabilité des prix qui ont suivi les cours du change incite les acheteurs à la plus grande circonspection. Le courant d'ordres pour l'exportation est limité et certains tisseurs se plaignent de la rareté des propositions d'affaires qui leur sont faites.

A la suite de la dépréciation de notre monnaie au début de ce trimestre une nouvelle majoration de 5 pour cent des salaires a été accordée portant ainsi la majoration totale à 30 pour cent depuis le mois de mars de l'année dernière. Toutefois le relèvement récent du franc belge a eu déjà sa répercussion sur le coût de la vie et prochainement les salaires seront réduits de 5 pour cent.

Gand a reçu récemment la visite de S.A.I. et R. le prince Teferi Makonnen, régent de l'Empire et héritier du Trône d'Ethiopie, qui avait exprimé le désir de visiter quelques filatures de coton. Monsieur le Comte Jean de Hemptinne, au nom de la Fédération Internationale Cotonnière, a attiré l'attention du prince sur la nécessité de développer la culture du coton et sur les avantages que l'Ethiopie pourrait en retirer.

## CANADA.

Mr. Chas. R. Hosmer, of Canadian Cottons, Ltd., in his report to the shareholders, states as follows :

"It is difficult to forecast business conditions for the coming year. At the moment curtailment is general among the textile mills throughout the world, and in all probability this will continue for some time to come. Your directors hope, however, that the last half of the financial year 1924-25 will show a decided improvement, particularly if a fair cotton crop is harvested which can be sold at reasonable figures. Stocks throughout the wholesale and retail are steadily diminishing, and further supplies will surely be needed before many months have passed. It is expected also that some Government action will shortly be taken to overcome the disability to which Canadian manufacturers are now subject through the discount on foreign exchange. Such a movement would certainly tend to increase the demand for domestic goods."

## CZECHO-SLOVAKIA.

There have been no recent changes in the wages of the textile industry and none are to be expected in the near future. The 48-hour week is strictly adhered to. The dispute between employers and operatives as to whether cleaning time should be included in the 48-hour week or not has not yet been terminated.

Orders for cotton yarns are decreasing ; this is accounted for by the big difference between cotton of old and new crops, of which clients are afraid. In consequence there is some demand for contracts based on the new crop. Buyers who have contracts running on the old crop are extremely afraid of entering into new ones based on the new crop. Export sales to Germany are not favoured as remittances are becoming less punctual. The yarn calculations on the basis of yarn prices at the end of May do not even allow quite 10.-Scts for spinning wages. The sale prices of yarns are roughly Kc.35=103.-Scts per 1 kg., basis 20's crop. This price leaves a loss.

In the cotton weaving and printing sections there is a general complaint on account of lack of orders. Most of the mills have work for two or three months, but only few orders can be had for further ahead, even when prices are reduced to the very minimum. Some mills are faced with the question of limiting their output, even stopping altogether, because the stocks of manufactured goods are increasing heavily whilst the sales are diminishing daily. The difficult financial conditions at home and in the neighbouring countries to which we export, as well as the general lack of confidence in the financial position, caused by many failures, appear to be the main reasons for the present stoppage of sales ; of course, a contributory cause is the high price of cotton.

There is no prospect of an improvement of the present conditions before autumn. On the other hand, we may even see a worse state of affairs. It is expected that by then financial conditions will have improved, and certainly the important question as to whether we shall have dear or cheap cotton will have been decided.

*The following is the original report in German.*

In der Tschechoslowakei haben sich in letzter Zeit keine Änderungen in den Arbeitslöhnen der Textilindustrie ergeben und sind auch für die nächste Zeit nicht zu erwarten.

Die 48stündige Arbeitswoche wird überall genau eingehalten. Der Streit zwischen Arbeitgebern und Arbeitnehmern darüber, ob die Putzstunde innerhalb oder ausserhalb der gesetzlich festgelegten 48-stündigen Arbeitszeit fällt, ist noch nicht beendet.

Der Auftragsstand in Baumwollgarnen nimmt ab. Es ist dies darauf zurückzuführen, dass die Kundschaft die grosse Differenz zwischen Baumwolle alter und neuer Ernte fürchtet. Infolgedessen besteht auch etwas Nachfrage für Garnschlüsse auf Basis neuer Ernte. Es fürchtet sich jedermann mit teureren Schlüssen aus alter Ernte in die neue Ernte hinüber zu gehen. Exportverkäufe nach Deutschland werden immer weniger als erstrebenswert angesehen, weil die Geldeingänge sporadischer zu werden beginnen. Die Garnkalkulation auf Grund der Garnpreise Ende Mai lässt nicht einmal ganz 10.-\$cts für Spinnlohn zu. Die Garnverkaufspreise betragen derzeit etwa Kc 35.-=103.-\$cts pro 1 kg Basis 20er Cops. Dieser Verkaufspreis ist als Verlustpreis zu bezeichnen.

In der Baumwollweb- und -Druckindustrie wird über mangelnde Nachfrage geklagt. Die meisten Fabriken sind zwar mit Aufträgen noch 2 bis 3 Monate versorgt, für fernere Termine sind jedoch Ordres nur sehr schwer, oft nicht einmal zu den äussersten Preisen zu bekommen. Einzelne Unternehmungen stehen unmittelbar vor starken Einschränkungen, vielleicht sogar vor Betriebsstilllegung, denn die Lager wachsen sehr stark an und der Absatz stockt immer mehr und mehr. Die schwierigen finanziellen Verhältnisse im Inlande und in den benachbarten, für den Export in Frage kommenden Ländern, dazu das allgemeine durch die vielen Insolvenzen hervorgerufene Misstrauen, scheinen die Hauptursachen für die eingetretene Stockung im Absatze zu sein, aber auch die hohen Baumwollpreise bringen eine gewisse Unsicherheit hervor und bewirken, dass mit Käufen zugewartet wird.

Eine Änderung der gegenwärtig herrschenden Lage der Baumwollspinn- und -Webindustrie, die eher noch eine Verschärfung als eine Erleichterung erfahren dürfte, kann vor den Herbstmonaten kaum

erwartet werden. Bis dorthin dürften sich wohl die finanziellen Verhältnisse gebessert haben und wird jedenfalls die äusserst wichtige Frage, ob in der nächsten Saison mit billiger oder teurer Baumwolle zu rechnen ist, entschieden sein.

(*Allgemeiner Deutscher Textilverband, Reichenberg.*)

## DENMARK.

### WAGES AND HOURS OF WORK.

Neither wages nor working hours have changed since our last report.

### DEMAND.

Sales are still rather satisfactory, as far as quantity is concerned ; the profit is very small as manufacturers are fearing that the demand would fall off if prices were raised in proportion to the increasing cost of raw materials.

The spinning mills are working full time, while the weaving mills are still only occupied to the extent of 75 per cent. of their normal working week.

### FUTURE OUTLOOK.

The future outlook is still very uncertain on account of the high price-level and the difficult state of the cotton market. Furthermore, it is feared that in the near future vigorous competition from Germany will set in.

## ENGLAND.

Whilst it is the general opinion that the position of spinners has, in consequence of the present short-time movement, considerably improved, the fact that the Federation has decided for a continuance of the present extent of curtailment, viz., 21½ hours each week during the months of June, July, August and September, 1924 (calculating the usual holidays as time stopped), proves that the position is anything but satisfactory in the American section of the Lancashire spinning mills.

The Egyptian section is doing a fair business ; complaints are made as to the irregularity of payments from German clients.

The fall in cotton prices since the publication of the crop condition report has unsettled buyers. Indian merchants are anxiously awaiting the news of the breaking of the monsoon, as in some quarters it is stated that the prevailing signs are not indicative of a favourable monsoon.

Both the spinning and manufacturing sections have lately been engaged in discussing with the Government representatives the proposed New Factory Bill.

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Mr. F. W. Tattersall's *Cotton Trade Review* of the 21st May describes the prospects of Lancashire's cotton industry as follows :

" During the past month spinners and manufacturers have not made progress, and in certain quarters ground has been lost. The turnover in yarn and cloth has been smaller, and the reduced business has had its effect upon producers. There is ground for believing, however, that the lull in demand will only be temporary. The inquiry met with from day to day indicated very clearly that dealers abroad have not satisfied their wants. Free buying, however, is undoubtedly being checked by the premium on current month cotton futures compared with distant positions, and until this difference passes away caution on the part of merchants must be expected. In most cloth outlets the trade outlook is

fairly encouraging. All the difficulties of spinners have not yet been removed. A very critical time of the year is approaching with regard to the American cotton crop. Lancashire is looking forward to a much larger production than in the three previous seasons, and optimism is justifiable. The weather in the belt, however, during the next two or three months will be a deciding factor, and in this connection it is impossible to forecast what may take place. It is satisfactory to know that the International Cotton Federation has decided to send another Commission to the United States in July, and the reports from this source will be very welcome. In view of the excellent advice given last year it is hoped that Lancashire will take the lead again."

**BRITISH EXPORTS OF PIECE GOODS (MONTHLY), WITH PRINCIPAL DESTINATIONS**

(In millions of square yards.)

*Compiled by the Liverpool Cotton Service, on basis of Board of Trade figures.*

**STATE OF TRADE**

571

**BRITISH EXPORTS OF YARNS (MONTHLY), WITH  
PRINCIPAL DESTINATIONS.**

(In millions of lbs.)

	Germany	Holland	France	Other Europe	India, etc.	Others	Total	Total 4 month
<b>1921</b>								
January .. .	.6	1.2	.4	1.5	1.3	2.1	7.2	
February .. .	.7	1.8	.8	1.7	2.3	1.6	8.5	
March .. .	.8	2.3	.3	2.7	1.2	1.6	8.8	
April .. .	.8	3.0	.2	1.8	1.8	1.7	8.8	
May .. .	1.0	2.5	.2	1.7	1.6	1.6	8.6	
June .. .	.9	3.3	.1	1.0	1.8	1.6	8.7	
July .. .	.6	2.3	.1	1.6	2.8	1.6	9.0	
August .. .	2.8	4.6	.2	2.4	3.6	2.3	15.3	
September .. .	1.8	8.4	.1	2.2	5.0	3.7	16.7	
October .. .	1.4	5.2	.3	3.0	4.7	4.0	18.6	
November .. .	2.1	5.4	.2	2.7	5.8	4.4	20.6	
December .. .	2.3	4.3	.1	1.9	3.8	3.7	16.0	
<b>Total</b> .. .	<b>14.9</b>	<b>39.2</b>	<b>2.5</b>	<b>24.2</b>	<b>35.3</b>	<b>29.8</b>	<b>145.9</b>	
<b>1922</b>								
January .. .	1.2	3.8	1	1.5	4.1	3.0	14.8	
February .. .	1.6	4.2	.2	1.3	4.0	2.2	14.9	
March .. .	1.9	5.5	.3	2.1	4.6	2.7	18.7	
April .. .	3.3	8.1	.2	2.2	3.9	2.6	21.8	
May .. .	4.8	6.3	.3	2.2	4.8	2.9	20.8	
June .. .	4.0	3.0	.3	2.1	2.8	2.4	15.7	
July .. .	4.1	7.1	.3	2.4	3.0	2.7	19.8	
August .. .	3.6	3.1	.3	1.9	2.5	2.1	13.6	
September .. .	3.1	6.0	.3	1.8	2.8	2.7	16.8	
October .. .	3.2	5.5	.4	1.8	2.6	2.6	16.0	
November .. .	2.8	4.7	.4	2.4	2.0	2.9	15.1	
December .. .	2.5	3.6	.4	1.6	1.1	2.6	11.7	
<b>Total</b> .. .	<b>35.4</b>	<b>61.8</b>	<b>3.6</b>	<b>28.7</b>	<b>38.5</b>	<b>32.8</b>	<b>201.3</b>	
<b>1923</b>								
January .. .	2.4	3.8	.3	2.2	1.2	2.9	12.8	
February .. .	1.7	2.6	.8	2.0	1.5	2.8	10.9	
March .. .	2.0	4.0	.2	2.2	1.9	2.7	18.0	
April .. .	1.5	2.7	.3	1.6	2.3	2.3	10.9	
May .. .	2.6	2.2	.4	2.2	2.4	2.8	12.6	
June .. .	2.3	2.0	.5	1.6	1.5	2.2	10.0	
July .. .	2.2	1.8	.4	2.1	1.8	2.2	9.5	
August .. .	2.7	3.4	.4	2.3	1.9	2.1	13.8	
September .. .	2.6	2.0	.3	2.7	2.1	2.3	12.0	
October .. .	2.8	3.0	.5	3.5	2.1	3.3	14.7	
November .. .	1.4	4.4	.6	3.7	1.7	2.9	14.6	
December .. .	1.7	2.0	.6	2.2	1.4	2.4	11.1	
<b>Total</b> .. .	<b>25.4</b>	<b>34.3</b>	<b>4.8</b>	<b>28.3</b>	<b>21.5</b>	<b>30.9</b>	<b>145.0</b>	
<b>1924</b>								
January .. .	2.0	2.7	.6	2.1	1.8	2.8	11.0	
February .. .	3.3	3.3	.6	2.5	1.8	2.6	14.1	
March .. .	3.6	2.8	.4	2.5	2.1	2.8	18.2	
April .. .	5.6	2.8	.5	2.6	2.3	2.8	16.1	
May .. .								
June .. .								

Just before going to Press the May Board of Trade returns were published. The *Manchester Guardian* gives the following tabulation :

The Board of Trade returns for May show a smaller export of cotton piece goods than last year, although the Whitsuntide holidays fell in May in 1923, but not this year. The features of the tables are again the large increases on last year in the exports of yarn and piece goods, mostly in the grey, to Germany and Switzerland, and the substantial trade done in yarn with Holland. Three years' May figures are appended :

## YARN

		1922	1923	1924
Sweden ..	..	150,000	244,000	121,900
Norway ..	..	252,600	260,700	193,700
Denmark ..	..	132,700	136,800	94,900
Poland (including Danzig) ..	..	52,200	80,900	104,700
Germany ..	..	4,819,100	2,608,700	6,803,900
Netherlands ..	..	6,301,700	2,225,800	3,090,000
Belgium ..	..	400,900	452,700	487,100
France ..	..	298,100	388,700	608,200
Switzerland ..	..	821,500	495,000	1,021,700
Austria ..	..	18,600	87,800	221,600
Bulgaria ..	..	125,600	168,100	98,500
Rumania ..	..	2,500	141,200	765,200
Turkey ..	..	177,400	102,700	108,800
Egypt ..	..	—	90,100	22,400
Dutch East Indies ..	..	74,700	78,500	21,500
China (including Hong Kong) ..	..	495,600	28,500	95,400
U.S.A. ..	..	318,700	532,800	264,600
Argentine Republic ..	..	198,700	271,500	140,900
*Egypt (incl. Anglo-Egyptian Sudan) ..	..	97,000	—	3,000
British India :				
Bombay (via Karachi) ..	..	137,100	81,700	37,400
Other ports ..	..	2,812,100	780,800	784,800
Madras ..	..	984,800	918,900	506,500
Bengal, etc ..	..	628,500	438,900	348,800
Burmah ..	..	141,100	184,800	74,700
Straits Settlements ..	..	112,000	46,500	41,300
Canada ..	..	177,900	176,800	126,600
Other countries ..	..	1,972,200	1,602,100	1,821,800
Total ..		20,767,300	12,374,500	18,029,100

\* Egypt and Anglo-Egyptian Sudan are shown separately, and Egypt is shown as a foreign country from 1923.

## PIECE GOODS.

		1922	1923	1924
Sweden ..	..	1,812,000	3,595,000	2,048,400
Norway ..	..	1,787,200	2,056,900	945,500
Denmark ..	..	2,640,200	3,149,800	2,819,100
Germany ..	..	9,668,400	1,866,200	10,484,000
Netherlands ..	..	4,803,500	8,814,400	4,815,800
Belgium ..	..	4,614,400	2,460,700	2,887,600
France ..	..	5,406,000	1,571,400	1,808,900
Switzerland ..	..	18,250,800	9,281,200	21,087,800
Portugal, Azores, etc. ..	..	1,718,000	8,410,700	952,700
Italy ..	..	1,175,000	1,977,200	1,278,600
Greece ..	..	2,496,200	8,055,900	3,944,500
Rumania ..	..	2,082,600	4,160,100	3,482,400
Turkey ..	..	8,697,200	15,568,700	10,286,800
Syria ..	..	4,088,800	4,182,400	2,962,600
Egypt ..	..	17,018,900	24,280,900	15,194,700
Morocco ..	..	4,201,100	5,726,000	6,298,800
Foreign West Africa ..	..	2,785,800	8,974,900	2,820,200
Foreign East Africa ..	..	826,900	661,800	664,400
Persia ..	..	907,100	1,952,400	1,332,600
Dutch East Indies ..	..	10,946,100	11,163,100	18,672,400

## STATE OF TRADE

573

### PIECE GOODS—*Continued.*

		1922	1923	1924
Philippines	.. .. .. ..	sq yds 266,000	sq yds 758,000	sq yds 1,506,400
Siam	.. .. .. ..	2,400,800	1,189,200	1,466,700
China (including Hong Kong)	.. .. .. ..	31,565,800	15,481,800	25,451,500
Japan	.. .. .. ..	1,961,600	1,308,500	1,724,600
U.S A	.. .. .. ..	5,276,700	15,436,600	11,794,000
Cuba	.. .. .. ..	491,900	2,741,100	2,001,800
Mexico	.. .. .. ..	458,000	988,900	1,570,000
Central America	.. .. .. ..	1,830,600	1,546,100	1,688,200
Colombia	.. .. .. ..	2,068,000	3,568,900	3,185,800
Venezuela	.. .. .. ..	702,200	2,227,000	2,692,400
Ecuador	.. .. .. ..	808,700	880,800	1,871,500
Peru	.. .. .. ..	728,200	1,341,800	1,926,400
Chile	.. .. .. ..	2,062,000	8,789,400	2,246,800
Brazil	.. .. .. ..	1,637,100	3,069,900	8,477,400
Uruguay	.. .. .. ..	1,447,200	2,499,800	2,131,500
Argentine Republic	.. .. .. ..	14,128,700	20,186,800	18,684,000
British West Africa	.. .. .. ..	6,158,400	9,191,900	5,077,600
British South Africa	.. .. .. ..	6,896,100	7,000,500	5,282,800
British East Africa	.. .. .. ..	740,600	1,869,200	1,188,000
Anglo-Egyptian Sudan	.. .. .. ..	240,300	978,600	484,200
Iraq	.. .. .. ..	14,932,100	9,877,200	5,963,800
British India :				
Bombay (via Karsachi)	.. .. .. ..	12,264,500	28,682,100	27,898,900
Other ports	.. .. .. ..	11,820,800	19,721,500	21,290,600
Madras	.. .. .. ..	3,788,900	7,738,000	10,158,500
Bengal, etc.	.. .. .. ..	64,822,100	82,529,100	83,045,200
Burma	.. .. .. ..	3,930,900	3,822,700	4,906,800
Straits Settlements and Federated Malay States	.. .. .. ..	5,982,500	8,529,400	5,649,900
Ceylon	.. .. .. ..	740,500	3,003,300	1,073,400
Australia	.. .. .. ..	19,001,800	13,824,900	12,666,200
New Zealand	.. .. .. ..	2,484,800	8,974,500	2,237,000
Canada	.. .. .. ..	2,512,000	4,419,300	4,890,900
British W. India Islands	.. .. .. ..	1,185,500	2,108,400	1,704,400
Other countries	.. .. .. ..	16,185,900	14,007,900	14,071,000
Total	..	341,424,800	409,902,600	394,318,000

### FINLAND.

The state of trade is unsatisfactory owing to last year's failure of crops, which has caused a reduced purchasing power and scarcity of money, with the consequent lack of demand for cotton goods. The mills are working four and five days per week. In view of such conditions the operatives do not raise the question of higher wages.

The exports and imports of cotton goods during the last three months have been as follows :

Month		Exports tons	Imports tons
February	.. .. .. ..	1	141
March	.. .. .. ..	2	158
April	.. .. .. ..	4	238

*(Finnish Association.)*

### FRANCE

A slackening of demand has been noticeable for some time, but there is still business for later deliveries. For near months nothing is doing.

At first, prices seemed to improve in certain districts, but they have become worse again. Stocks continue unimportant. There is no short time. On account of the fluctuations in the rates of exchange, business is uncertain.

#### WAGFS.

In the last BULLETIN we omitted to state that since March the following increases have taken place :

Eastern District : about 4 per cent.

Lille and Alsace : about 10 centimes per hour.

(As regards prices and exports, see the following French original article.)

#### ÉTAT DES AFFAIRES.

Un ralentissement des affaires se manifeste depuis quelque temps. Cependant une certaine demande pour les mois éloignés subsiste encore ; mais par suite du déport, les affaires sur mois rapprochés sont presque nulles.

Après un semblant d'amélioration, les prix, dans certaines régions, redeviennent mauvais.

Les stocks continuent à être peu importants. On ne signale pas de chômage.

Dans l'ensemble, la situation apparaît toujours incertaine par suite des continues fluctuations des changes.

#### SALAIRS.

Quelques relevements de salaires, qui n'ont pu être signalés dans le dernier BULLETIN, ont eu lieu en mars. Région de l'Est, 4 pour cent environ ; Lille et Alsace, 10 centimes l'heure.

#### PRIX.

				Chainé 28 (le kilo)		Calicot $\frac{1}{4} 20 \times 20$ (le mètre)
15 mars	..	..	..	24.30 fr.	..	2.79 fr.
15 avril	..	..	..	19.50 ..	..	2.80 ..
15 mai	..	..	..	19.25 ..	..	2.25 ..

#### EXPORTATIONS DE FILÉS ET TISSUS DE COTON PENDANT LE 1er TRIMESTRE 1924.

##### FILÉS DE COTON

(a) Chiffre total (toutes catégories)	..	..	..	..	en Q.M.	34,188
(b) Décomposition par principales catégories de filé :						
Fils simples	Ecrus	..	..	..	..	18,830
	Blanchis	..	..	..	..	278
	Teints ou chinés	..	..	..	..	1,147
	Glacés	..	..	..	..	181
	Ecrus	..	..	..	..	2,468
	Blanchis	..	..	..	..	2,205
	Teints ou chinés	..	..	..	..	3,889
	Glacés	..	..	..	..	5,161

##### TISSUS DE COTON

(a) Chiffre total (toutes catégories)	..	..	..	..	en Q.M.	176,665
(b) Décomposition par principales catégories de tissu :						
Ecrus	..	..	..	..	..	87,604
Blanchis ou fabriqués avec des fils blanchis	..	..	..	..	..	80,126
Bandes pour pansements écrues ou blanchies	..	..	..	..	..	807
Teints	..	..	..	..	..	68,187
Fabriqués avec des fils teints	..	..	..	..	..	8,264

Imprimés ..	..	..	..	..	..	..	in Q VI	12,247
Velours ..	..	..	..	..	..	..	"	1,026
Couvertures ..	..	..	..	..	..	..	"	6,142
Bonneterie ..	..	..	..	..	..	..	"	2,971
Etoffes mélangées ..	..	..	..	..	..	..	"	2,492

(French Cotton Spinners' Association).

## GERMANY

The shortage of working capital in the German cotton spinning industry is preventing spinners and manufacturers from working at full capacity. A satisfactory solution of the difficulties in regard to conditions of payment and delivery is of the utmost importance for the German textile trade and industry. It is, of course, the aim of all parties in Germany to bring conditions back to normal, but the shortage of capital and stringent banking conditions are hindering the success of these endeavours.

The British Commercial Secretary at Berlin reports that in the cotton wholesale trade the demand has slackened. Many firms, chiefly ready-made clothing dealers who had given considerable orders are now endeavouring to withdraw on the plea that the situation has completely altered in the interval. The cotton and wool weavers in the Gladbach area, have, in many cases, been unable to obtain payment for goods which they had delivered, and in others orders have been cancelled.

The situation in the German textile industry is becoming more and more critical. It grows increasingly plain that the textile wholesale trade in Germany completely overestimated the extent and duration of the recent boom. Home traders, by giving out excessive speculative orders, have led the industry into production on a scale which now proves to have no justification. The German imports of textile raw materials and semi-manufactures in the first three months of the present year were as follows :

### I. UNWORKED

							Tons
Raw cotton, linters ..	..	..	..	..	..	..	69,150
Flax and flax tow ..	..	..	..	..	..	..	5,018
Hemp and hemp tow ..	..	..	..	..	..	..	6,456
Jute and jute tow ..	..	..	..	..	..	..	30,898
Other plant fibres ..	..	..	..	..	..	..	4,423
Sheep's wool ..	..	..	..	..	..	..	48,192

### II. WORKED.

							Tons
Cotton waste ..	..	..	..	..	..	..	8,422
Cotton yarns ..	..	..	..	..	..	..	7,385
Wool ..	..	..	..	..	..	..	4,898
Woollen yarns ..	..	..	..	..	..	..	8,836
Other worked vegetable spun stuffs ..	..	..	..	..	..	..	8,566
Raw silk, floss silk, spun silk ..	..	..	..	..	..	..	1,738

The total value of the textile imports in this period was 599 million gold marks, 440 millions of this being unworked raw material. Imports began to fall in March, though the German textile trade retained its optimism until the end of April.

Since then, owing to the slump in sales and the delays in payments, the German boom has rapidly given place to a pronounced depression. In pursuance of its stabilization policy, the Reichsbank (and most of the other banks concur) is refusing further to discount textile bills, and consequently it is impossible for the textile firms to obtain any relief in this way. Many sound firms have got into difficulties, and are unable

to see where they can get the means for meeting their current liabilities. In these circumstances the great volume of orders which the industry was parading recently, promising it employment in many cases to the end of the year and beyond, does not seem to be worth much. For weeks there have been virtually no new orders, while there are many cancellations of existing orders. This is not only affecting the industry; even the retail trade is suffering, and customers who have actually made payment on account are now trying to withdraw.

(*Manchester Guardian Commercial*).

## HOLLAND.

Most of the cotton mills in the Twente district have been stopped since the end of December last owing to a wages dispute. The manufacturers decided in the autumn of 1923 to reduce wages by 10 per cent., and as it was not possible to come to an understanding with the unions about this matter this reduction was enforced in the first week of November, 1923. A strike ensued at one of the smaller mills of Messrs. Van Heek & Co., at Enschede, and this led to a lock-out, which came into force in the Enschede mills on November 24, 1923, and in the mills outside Enschede four weeks later. This lock-out was proclaimed by 39 mills, employing 21,000 workpeople, and lasted without interruption till the beginning of May last. In March-April several negotiations were started, but proved unsuccessful, as neither party was inclined for concessions. Moreover it was very difficult to restart negotiations, as the workpeople in Holland are organized in different unions, according to their principles. These unions are organized on communistic, socialistic or religious lines, and as these different unions compete against each other in trying to increase their membership it is often very difficult to come to an agreement which satisfies them all.

Since the beginning of this year a new law has been enforced in Holland which enables the Government to mediate in these conflicts, and certain Government-mediators have been appointed for the different industrial districts. After very prolonged negotiations with both employers and workpeople the Government-mediator made a proposal by which the reduction in wages was reduced from 10 per cent. to  $7\frac{1}{2}$  per cent. To compensate the employers for this concession the workpeople should agree to increase the working week up till December 31, 1925, from 48 hours to  $50\frac{1}{2}$  hours, while the employers had to agree to work not more than 48 hours during at least 6 weeks in 1924 and 12 weeks in 1925 to keep up the principle of the 48-hour week. The mills resumed work on Monday, the 5th of May, and the wages are to be maintained till December, 1925. Both the employers and the two Christian unions, which contain the majority of the organized workpeople, accepted this proposal, and the lock-out ceased on May 5. Although the socialistic and communistic unions did not agree, most of the workpeople resumed work on this date, and nearly all the mills outside Enschede have been working since. In Enschede itself the difficulties were larger, and only a small number of workpeople resumed work on May 5, although a greater number would have done so if they had not been afraid of intimidation on the part of the strikers. Since then the protection by police force has become more complete, and at present about 4,200 or 45 per cent. of the workpeople are working in these mills. This number

is still increasing, and it is hoped that in this way an end to the conflict will be reached.

Owing to this labour conflict business has been very restricted during the last few months. The demand for yarns has somewhat improved, and if the mills were working they would probably be able to sell their production without loss.

In cotton goods the demand for home trade is still very poor, and, notwithstanding the lock-out, stocks are still considerable. Even the mills that have not been stopped have not been able to sell their production of home-trade goods, and prices of all these goods are altogether very poor.

For export the demand has somewhat improved, especially where manufacturers have been able to offer for quick delivery. Prices are generally insufficient, and most transactions show a loss to the manufacturers.

## INDIA.

The prolonged strike in the Bombay mills had the effect of scattering labour, and since the resumption of work, mills have been working at nothing like their full strength. Outturn has suffered in consequence, but at the same time this has helped to keep down stocks of the manufactured article, which since January last show a reduction of nearly 50 per cent. in piece goods. The total uncleared stocks barely represent two months' production in piece goods and a fortnight's production in yarns. Congestion therefore has been greatly relieved, but there is no profit in it for the manufacturer owing to the high price of cotton without any compensating increase in the price of cloth and yarn. Finance has also been a pressing difficulty. The bank rate was as high as 9 per cent. for some weeks, and is still as high as 7 per cent.—an abnormal rate at this time of the year. The banks have also, and very naturally, required bigger margins against advances on stocks and this has restricted finance. Unsatisfactory as 1923 was, the outlook for 1924 is poor indeed. Profits will be negligible and most mills will consider themselves lucky if they can close the year without a loss. It will be a testing time for concerns which are not financially strong.

## ITALY.

The general conditions of the Italian market are about the same as reported three months ago in the BULLETIN.

Yarn prices are not in proportion to the actual cost of production, and no improvement in the sale of cloth for the Italian home trade is perceptible. The export trade is maintaining itself on a fair basis, and in comparison with last year the volume has increased. Exports of yarn in fairly large quantities to Germany and Switzerland have taken place during the last few months.

The imports of raw cotton during the three months of 1924 showed increases, namely, 59,089,500 kg. against 53,701,000 kg. for the first three months of 1923.

During the same period we exported cotton yarn for 3,658,000 kg., whereas at the end of March, 1923, we had exported 29,997,000 kg. Cotton cloth exported, 10,332,000 kg. in 1924, against 8,223,000 kg. in 1923. Cotton yarn imported, 237,000 kg.; cloth imported, 742,000 kg.

## INTERNATIONAL COTTON BULLETIN

Statistics show evidently that mills' stocks of yarns and manufactured goods are small.

The agreement adopted in 1921 between the masters' and labour organizations is now to be revised, but it is anticipated that wages will remain unchanged. (*Italian Cotton Association.*)

## JAPAN.

Statement showing number of bales (about 400 lbs.) of yarn produced in the cotton mills of Japan (as per particulars supplied by the Japan Cotton Spinners' Association, Osaka) :

## WEFT YARN

COUNTS .	BELOW 10's	10	12	13	14	15	16	18	20	22	42
Feb., 1924 .	948.5	5,349.5	2,806.5	86	4,271.5	304.5	18,178.5	56.5	206	—	—
Jan., 1924 ..	1,481.5	6,714.5	3,027.0	93.5	8,956.5	900.5	18,293	81.0	182.5	73.0	—
Feb., 1923 ..	2,115.0	7,961.5	4,237.5	186.5	4,721.3	490.0	15,969.5	28	407.0	61	35.0

## TWIST YARN.

COUNTS ..	BELOW 10's	10	11	12	13	14	15	16
February, 1924	1,381.5	4,680.0	467.0	612.0	510.5	10,659.5	5,903.0	6,464.5
January, 1924	1,108.5	2,835.5	567.0	679.5	418.0	10,293.5	5,806.0	6,407.0
February, 1923 ..	2,891.0	4,224.5	182.0	1,058.0	430.5	9,277.0	5,809.0	4,005.0

COUNTS ..	17	18	20	21	22	23	24
February, 1924	235.5	698.0	19,550.5	1,807.5	901.5	3,691.0	2,440.5
January, 1924 ..	204.0	605.0	50,621.5	1,434.5	994.0	3,907.0	2,634.5
February, 1923 ..	102.0	705.5	56,505.5	1,667.0	871.5	8,504.5	2,758.5

COUNTS ..	25	26	27	28	29	30	32
February, 1924	866.0	—	294.0	71.0	—	9,662.5	5,481.5
January, 1924 ..	962.0	—	309.0	—	122.5	8,772.5	5,587.5
February, 1923 ..	1,579.0	45.0	358.0	—	—	7,089.0	3,051.0

COUNTS ..	34	35	36	37	38	40	41
February, 1924	191.5	218.0	2,128.0	19.5	598.0	9,319.0	223.0
January, 1924 ..	107.5	226.0	2,203.0	20.0	640.5	8,787.5	193.0
February, 1923 ..	264.5	18.0	2,369.5	0.0	600.0	8,225.5	—

(See also other Statistics of Japan in Cotton Mill Section of this Bulletin, p. 584.)

## RUSSIA.

We are informed from reliable quarters that more spindles are working and that in this season more American cotton will be wanted than last year. Further, that the crop in Russian Asia is increasing very satisfactorily. Our informant, who has recently inspected several Moscow mills, told us that the spindles which have not been running for some time are still in fairly good working condition and many more spindles will turn round this year than last.

## SWEDEN.

From the 1st of April our currency has, by a decision in the "Riksdag," returned to the gold standard and the Swedish money has now practically regained its old parity with the dollar. The price of raw cotton has thus become independent of the frequently sudden and unforeseen fluctuations in the rate of exchange, which caused a very disagreeable uncertainty in all calculations during the last few years.

In comparison with the same period last year, the cotton trade does not show any very remarkable changes with the exception of the cloth market.

There has been a slightly increased production of yarn, the import has been reduced and the export, in itself not very important, shows an increase when compared with the two previous years.

In cotton cloth we have to fight against cheap imported goods from countries with low rates of exchange.

The 48-hour week is and will very likely remain for a long time the main obstacle for a return to steadier trade conditions.

## U.S.A.

### U.S. SPINNERS' CAMPAIGN AGAINST IMPORTS.

During the present period of rather acute depression that has beset the cotton mills, especially in New England, practically since last August, there have been many outcries against the increasing importation of British cotton goods into this country. Matters seem to have come to a head with the demand from the National Association of Cotton Manufacturers' meeting at Boston for the flexible clause of the last Tariff Act to be put into force to curtail the inroads of imported cotton cloth in the domestic market.

The resolution calling for retaliatory measures to be adopted pointed out that for many years previous to the enactment of the Underwood tariff of 1913 the imports of cotton cloth averaged about 50,000,000 square yards, under a tariff rate of 42 per cent. The Underwood tariff reduced the average rate to less than 20 per cent., and in the present Tariff Act the rates on cotton cloth were only slightly increased over the Underwood Act. This, according to the Association, has resulted in an enormous increase in importations, amounting to over 200,000,000 square yards, or 300 per cent. more than the former average.

The class of cotton cloths imported is chiefly high-grade, fine-yarn fabrics such as are made in New England and equal to the production of 1,500,000 to 2,000,000 spindles. It is quite likely that some action will be taken by the Government in the matter in view of the imminence of the Presidential election and the desire of the Republicans to conciliate the New England districts especially in a matter that affects them so vitally.  
*(Manchester Guardian Commercial.)*

### DEPRESSION IN COTTON TEXTILE INDUSTRY—A GOVERNMENT INQUIRY.

An investigation of the "prolonged depression" in the United States cotton textile industry by the Tariff Commission is proposed in a resolution submitted to-day by Senator Walsh. Asserting that the depressed condition of the industry is of "exceptional magnitude," and has caused a reduction in production of from 40 to 60 per cent., with consequent

"want and distress in the communities" in which mills are located, the resolution sets forth the following points upon which a report is sought:

Is the present depression in the cotton manufacturing industry confined to the United States, or is it world-wide?

To what extent and for how long a period has the present depression in the cotton manufacturing industry of this country been apparent?

To what extent is the present depression due to the high price of cotton, particularly in curtailing the consumption of cotton cloth, and to what extent is it due to other causes?

If there is a difference in the prosperity of this industry in different sections of the country, to what extent, if any, is it attributable to the labour legislation of the different States?

What is the quantity and value of cotton cloth imported into and exported from the United States under the present Tariff Act as compared with those under the Acts of 1909 and 1913?

What is the percentage of imports and exports, as compared with the domestic production of cotton cloth in the census years 1909, 1914, 1919, 1921, and 1923?

What types of cotton cloths constitute the bulk of the import trade, and are these cloths similar to or different in character from those produced in this country?

What are the main reasons for the importation of cotton cloths; in particular, are such imports due primarily to price or to quality?

To what extent has the domestic industry been affected by the post-war increases in the importation of cotton cloths?

Would changes in the present tariff rates on cotton cloths be of material assistance in stimulating production and restoring prosperity to this industry?—(*Reuter's Trade Service*).

According to a cabled message dated May 12 the Senate has ordered the inquiry demanded by Senator Walsh.

## The American Economic Situation

The National Bank of Commerce in New York has in its *Monthly Commerce Journal* (No. 2, Vol. VI) an analysis of the present conditions in U.S.A. and of the outlook for the future. As the consumption of American cotton is to a marked extent dependent on the trend of commerce in the States it will not be out of place if we quote from this carefully written article the following passages:

In the long run, the course of business is governed by facts, not sentiment, and the facts of the situation to-day do not justify a spirit of pessimism. However unsatisfactory conditions may seem to be from the standpoint of the individual business man, firm or industry, they are not unforeseen, and they are sound.

During the war years and the post war boom, the entire population of the United States acquired bad business habits. Money came easily and went easily. All became to a greater or less degree the prey of inflated ideas. High wages, high profits, high prices and capacity operation became the standard of prosperity. The boom which occurred during the early months of 1923 confirmed a considerable section of the business public in its mistaken notions, and apparently it is yet believed by some that a sellers' market and rising prices are a normal condition.

It is now being rapidly demonstrated that such is not the case, but there is no justification for discouragement. At no time have there been grounds for any expectation of boom business in 1924. There have been and there continue to be adequate reasons for an expectation of a fair volume of business and reasonable profits for those who know how to make them when competition is keen.

It is true that buyers of all classes of goods are hesitant, advance orders are small and most industries are well below capacity. Even in industries in which there has been no marked curtailment of operations, great sales resistance is met, selling costs are high in consequence, and profits are hard to make.

**FAVOURABLE FACTORS.**—Despite these unquestioned evidences of a slowing down, there has been no change since the beginning of the year in the fundamental factors. At that time those generally recognized as favourable were : Adequate supplies of credit and stable money rates ; expectation of fairly stable prices ; reasonable stocks of goods ; continuance of foreign trade in fair volume, probably at not far from the levels of 1923 ; full employment, due in considerable part to an active building and construction programme, continued improvement and expansion of railroad facilities, and a high rate of automobile output, with consequent stimulation of subsidiary and allied industries.

The adverse factors were : Unsatisfactory agricultural situation ; overbuilt industries ; little likelihood of any material expansion of foreign markets, either for farm products and raw materials or for manufactures ; heavy public expenditures and high taxes ; unsettling effects of political agitation.

Presidential years are usually characterized by business caution, because of inevitable uncertainty as to the future course of legislation. It is easy to exaggerate the importance of this influence, however. At present, legislation actually pending is a much more important factor.

As the year has progressed, the apparent determination of Congress to increase public expenditures when the foremost need of the country is their reduction has had an adverse effect on business. Equally discouraging is the situation as to tax revision. Not only have the constructive plans offered by the administration been blocked by partisan considerations, but substitute measures have been offered which are definitely inimical to business.

The political situation is unquestionably having a deterrent effect on forward commitments, but fortunately the course of events ultimately is determined by influences much more fundamental. There is no prospect of easy profits in 1924, but there is likewise no reason to regard with apprehension the business outlook for the remainder of the year.



## EFFECT OF THE 48 HOUR WEEK ON THE COTTON INDUSTRY.

This subject was discussed at the Stockholm Cotton Congress two years ago and a reference to the Congress report shows the keen interest taken by the delegates in the subject. The Committee included on the agenda of the postponed Vienna Cotton Congress the same item for further discussion and with a view to collecting information on a uniform basis a questionnaire was addressed to the affiliated associations, the accompanying table (inset) is the result of a tabulation of the answers given and it is hoped that this authentic information will prove of value whenever changes in the working hours of one or the other country are proposed.

### U.S.A.

#### MANUFACTURING MARGINS ON STAPLE YARNS AND CLOTHS (In cents per pounds)

*As compiled by The Merchants National Bank of Boston*

Date	Margin on 10 s Single Frame Cones	Margin on 20/2 Carded Sheets	Margin on 4 yd Brown Sheeting	Margin on 38 1/2 m 64 60 5 00 yd Print Cloth
1924				
Jan 5	7 88	13 88	13 88	17 78
," 12	8 43- 8 93	13 93-14 48	15 93	17 44
," 19	9 59 10 09	13 59-14 09	17 09	14 59
," 26	8 68	11 86	15 86	18 99
Feb 2	5 93	9 93-10 93	11 93	18 43
," 9	6 31	10 31-11 31	15 51	16 68
," 16	9 31	18 31	16 31	18 46
," 23	9 38	13 88	16 88	14 88
March 1	9 54 10 04	13 04	18 04	15 19
," 8	9 48	12 49	17 98	15 13
," 15	9 32	11 32	15 82	18 97
," 22	8 64	12 84-13 84	16 84	14 49
," 29	10 18	12 18	16 68	18 16
April 5	7 24	10 24	14 24	18 78
," 12	6 25	10 25-11 25	13 25	12 74
," 17	7 18	11 68-12 18	14 18	12 38
," 26	6 92	10 92-11 42	18 42	11 23
May 3	6 41	10 94-11 94	12 96	11 11
," 10	5 09	9 59	11 59	11 10
," 17	5 16	9 66	11 66	11 17
," 24	3 35	7 85	9 85	10 00

**QUESTIONNAIRE**

- 1 Is the 48 hour week established by Law or by mutual agreement between employers and operatives?
- 2 What number of hours per week are allowed to be worked in cotton textile factories?

Is cleaning time included in the hours per week allowed to be worked?

- 3 What time is allowed per week for cleaning the machines?

- 4 Is overtime allowed to be worked? If so to what extent (No of hours per year) Is any extra payment made for overtime? State percentage

- 5 Is any serious movement on foot for extending the working hours to beyond 48 per week?

- 6 What is the reduction in working hours now worked compared with those worked in 1914?

- 7 What effect has the reduction in hours had upon the output?

- 8 State the daily times of starting and stopping and intervals allowed for meals

- 10 If some other rota of hours is considered more suitable, please say what, in your opinion they should be

- 11 Is night-work allowed in your country?

- 12 Have you workpeople available to enable you to work in two shifts?

**BELGIUM**

Law of 11th June 1921 in operation since 1st October 1921

48

Cleaning time is *not* included in 48 hours

1 hour per week

Permissible but conditions seldom allow it Consent of Trade Union leader and proof to be given of unexpected extraordinary rush of work 25% extra for first two hours and 50% following hours

Yes Bill for prolongation has been introduced, but the recent Cabinet crisis has delayed matters

16½ hours per week

As production depends on number of revolutions per machine, there has been no serious effect on output

Monday to Friday -6.30 to 12.0 noon  
1.30 to 5.0 p.m.  
Quarter hour rest—9.30 to 10.15 a.m.  
Saturdays—6.30 to 11.0 a.m.  
Quarter hour rest 9.0 to 8.45 a.m.

No reason for alteration

Night-work is not allowed

Insufficient, some very few mills have been able to work two shifts



Manufacturing margins as here given indicate the difference obtaining between the cost of cotton in the yarn or cloth, i.e., with allowance for waste, and prices of the two yarns and the two fabrics. The cost of cotton is computed on the basis of the price of middling upland spot cotton at New York, this being increased by  $16\frac{2}{3}$  per cent. to allow for loss through visible and invisible waste of all kinds. Out of these margins manufacturers must meet all manufacturing costs, including labour, supplies, overhead, selling expenses, etc., and secure their manufacturing profits.

#### PERCENTAGE ACTIVITY OF THE COTTON SPINNING INDUSTRY OF THE USA

Month	1922	1923	1924
January ..	96	106.6	93.9
February ..	97	113.2	92.8
March ..	88	100.4	88.8
April ..	84	109.9	80.1
May ..	89	109.0	—
June ..	91	100.1	—
July ..	89	87.0	—

#### FALL RIVER COTTON MILL DIVIDENDS FOR THE SECOND QUARTER OF 1924.

The *Economic World* of 24th May, 1924, states : "The dividends declared by American cotton mills are being watched with unusual interest at the present time both by the cotton trade proper and by the cotton goods trade, owing to the general and serious complaints from the cotton industry of inability to dispose of the products of the mills except at prices involving ruinous losses. It appears from a summary that 40 Fall River mills, having an aggregate capital of \$43,965,000, declared dividends for the period totalling \$742,175, equivalent to 1.688+ per cent. on the capital stated, as compared with total dividends of \$656,175 (equivalent to 1.514+ per cent. on a capital of \$43,315,000) declared by the same 40 mills for the first quarter of 1924 and with total dividends of 740,675 (equivalent to 1.721+ per cent. on a capital of \$43,015,000) declared by them for the second quarter of 1923. It should be observed, however, that included in the total for the second quarter of the present year is a large item—\$187,500—described as a 'distribution of assets' rather than a dividend proper; and that when this item is omitted the dividend total for the period is much smaller than that for any quarter in several years."

#### HUNGARIAN COTTON INDUSTRY.

The Magyar Textile Association, Budapest, V., Zrinyi-Utca 1., having become a member of the International Cotton Federation, it may be of interest to state that the number of cotton spindles in that country has increased since 1921 from 33,000 to 93,000, and the number

of looms from 4,100 to 8,000. The present production is 70,000,000 m. of cotton cloth per annum.

In consequence of the additional looms erected recently, the imports have, of course, fallen off.

The calico printing industry employs now 37 machines against 32 in 1921, and the number of spindles in the woollen, flax and linen industries all show considerable increases during the last few years.

## COTTON COMPANIES' RESULTS IN LANCASHIRE.

Mr. F. W. Tattersall states in his last *Cotton Trade Review* that out of 68 concerns, for which comparative figures are available, and which have been engaged solely in spinning of cotton yarns, employing a total paid-up ordinary share capital of £8,936,738 and 6,899,792 spindles, 46 companies have paid no dividend, one firm made a distribution of 2½ per cent. per annum, two 4, one 4½, four 5, one 5½, one 6½, five 10, one 13½, four 15, and two 20, absorbing £102,945.

For the 39 companies whose stocktaking reports relate to the three months ended April, an average payment of 2·79 per cent. was made, compared with 2·55 in January, 2·77 in October, 3·05 in July, and 3·41 in April, 1923. The total paid-up ordinary share capital of the 39 companies is £3,863,260, and the aggregate spindlage 3,659,092. In 27 cases no dividend was paid, but one firm distributed 4 per cent., one 4½, one 5, one 5½, one 6½, four 10, one 13½, and two 15, requiring £20,616.

## TEXTILE MACHINERY SHIPMENTS.

(From F. W. Tattersall's "*Cotton Trade Review*.")

The following is a comparative table of textile machinery shipments from the United Kingdom for the past four months :

				Four months ended April.	
		Tons		£	
1913	..	..	..	56,041	..
1914	..	..	..	54,505	..
1915	..	..	..	19,007	..
1916	..	..	..	18,841	..
1917	..	..	..	18,862	..
1918	..	..	..	11,771	..
1919	..	..	..	15,866	..
1920	..	..	..	12,834	..
1921	..	..	..	56,226	..
1922	..	..	..	61,436	..
1923	..	..	..	58,619	..
1924	..	..	..	38,658	..

A comparative detailed table of the weights of textile machinery ship-

ments for the first four months of the three years, 1922, 1923, and 1924, is shown below :

			Four months ended April		
			1922 Tons	1923 Tons	1924 Tons
Russia ..	..	..	27	40	108
Germany ..	..	..	129	296	405
Netherlands ..	..	..	515	997	912
France ..	..	..	5,927	3,969	1,689
Other countries in Europe ..	..	..	8,028	5,623	6,220
China (including Hong Kong) ..	..	..	8,955	8,113	754
Japan ..	..	..	11,491	8,071	4,865
United States of America ..	..	..	2,357	2,010	2,416
Countries in South America ..	..	..	1,300	2,488	2,979
British East Indies ..	..	..	25,707	24,202	11,189
Australia ..	..	..	1,187	1,458	797
Other countries ..	..	..	658	1,862	1,874
Total ..	..	..	61,436	58,619	88,658
SUMMARY			1922	1923	1924
Spinning ..	..	..	Tons 49,907	Tons 44,713	Tons 26,806
Weaving ..	..	..	9,843	7,284	5,726
Other ..	..	..	2,184	1,622	1,626
Total ..	..	..	61,436	58,619	88,658

### A NEW METHOD OF DEFIBRATION OF FINE TEXTILE FIBRES SUCH AS FLAX, HEMP, RAMIE AND ALL KINDS OF FIBROUS PLANTS.

It is well known that so far it has been necessary to subject such plants to a lengthy process of retting, followed by a coarse mechanical treatment before obtaining a fibre that could be turned into yarn after a complicated process. Whilst prices of these raw materials, such as the straw of the flax, are low, the price of the actual linen cloth in consequence of the expensive method of preparation and treatment is so high that it has not been able to compete so far with cotton.

Several experiments have been made during the last few years to bring about in a mechanical manner the defibration, but in all these methods considerable disadvantages exist. Through the application of acid-containing liquids, the material became damaged and could only be used with an admixture of cotton.

It is now claimed that a new process has been invented in Germany which removes the difficulties in a simple, rapid and cheap way. The whole of the fibrous contents of the plant are obtained and it is claimed that the natural resistance is maintained. The material is smooth, soft and lustrous, as the samples submitted to us prove.

The process consists in steeping and boiling for a short time the raw

materials in water to which certain chemicals are added. After this they are rinsed and dried in simple machinery. The material can then be employed on ordinary machines used in every cotton mill. It is claimed that the price of such flax fibre is considerably cheaper than the price of East Indian cotton. Coal for heating purposes is hardly necessary as the refuse of the plants can be utilized as fuel. The chemicals have no detrimental effect on the fibre and are so cheap that they hardly enter into consideration.

The writer has seen samples of such yarn and cloth and several scientific and technical institutes in Germany have given favourable reports. It would appear, if the claims made prove to be correct, that some of the idle cotton spindles might find work by utilizing flax, ramie, etc. Further information may be obtained from Mr. R. Geiss, Süddeutsche Rohstoffverwertung, 6/1, Maffeistrasse, Munich, Bavaria.

A. S. P.

## New Automatic Cotton Weaving Loom.

According to *The Manchester Guardian* the world-famous firm of Horrockses, Crewdson & Co. have recently concluded the tests of an attachment invented by Mr. John Whittaker, of Wilpshire, near Blackburn, for the automatic feeding of weft into Lancashire and other types of looms, and are so far satisfied with the results of this important device that they are fitting it to their own looms and are putting it on the market.

Briefly, the attachment allows the loom to run continuously, with no pause for anything except breakages, and thereby saves a great deal of labour. A weaver who is accustomed to tend four ordinary looms can tend 16 fitted with the Whittaker attachment, and each loom will weave 20 or 30 per cent. more in the hour. The weaver has only to fill the battery with fresh cops as it empties them one by one into the shuttle ; nor does he need to be more than ordinarily skilled. He has no threading to do, for the whole operation of charging the shuttle with a full cop and threading it is done by the machine so fast that, running, for instance, at 180 picks a minute, the eye cannot see it happen. The loom continues as before.

The importance of the invention, apart from its efficiency, is that it may be fitted to Lancashire looms, unlike the American automatic looms, which are complete in themselves, and the 40 or 50 representatives of big firms who have seen the device at work have expressed their satisfaction with its performance.

It may appear that on the facts given the attachment will produce a change in the industry only second to the application of power to weaving, but it is believed by those most interested in the device that the interests of the weavers themselves will not be damaged. It is pointed out that the decrease in the number of young men and women who enter the sheds has already absorbed the surplus labour which the use of the attachment would create. In a normal year of weaving the numbers of weavers available would fall far short of the number required. Even now, while working short time, Messrs. Horrockses & Crewdson cannot find all the labour they want at Mossley and Stalybridge, and Bolton also

presents some difficulty. It is thus argued that although only about a quarter the number of weavers would be required to serve the existing number of looms if fitted with the Whittaker attachment, a fair trade would provide employment for all the weavers and not disturb the labour market. It is estimated that with a full demand 200,000 looms would be without tenters.

#### A SIMPLE MECHANISM.

So far the device has been fitted as a complete success to Lancashire looms, but experimentally it is working also on an under-feed loom, and is to be applied to looms weaving woollens and linens. It is not designed for use on circular-box looms or drop-box looms, and cannot be used on looms using two or more coloured wefts.

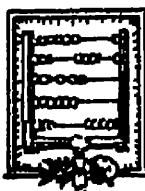
In appearance the device is not complicated. On inclined planes in a small irregularly shaped box fixed on the left end of the loom lie 12 full cops, the lowest one held within a few inches of the shuttle-box. At the other end of the loom a feeler advances to touch the emptying cop at each pick. When the thread is unwound and the feeler in consequence gets to the wood of the bobbins the mechanism at the other end begins to work. The shuttle-box in its movement comes under the lowest cop in the battery, a hammer strikes the full cop and rams it into the shuttle, striking the empty cop through the shuttle out of the shuttle-box. Such a device, it will be seen, can be fitted fairly simply, without change of method or rearrangement of loom space.

The device is the product of 20 years' patient research and the expenditure of £20,000 in experimental work. As the invention has developed from stage to stage Mr. Whittaker has taken out over a score of patents, and one improvement after another has meant the scrapping of superseded ideas until he has at last perfected his contrivance.

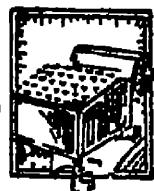
The final test at Messrs. Horrockses, Crewdson & Co.'s experimental shed was made with eight looms, working at various picks speeds, and supervised by only one weaver. The time worked was a "week" of  $43\frac{1}{4}$  hours. In an ordinary shed under the best conditions a loss of 20 to 30 per cent. in efficiency has to be reckoned upon owing to the necessity of loom stoppage for the replenishment of weft cops and shuttle threading. The returns of the eight looms fed with weft cops by Mr. Whittaker's device were as follows :

Loom.		Picks per minute.	Percentage of efficiency.
1	.. .. .. .. ..	182.8	98.10
2	.. .. .. .. ..	184.8	97.64
3	.. .. .. .. ..	194.8	94.78
4	.. .. .. .. ..	185.6	96.07
5	.. .. .. .. ..	181.6	95.55
6	.. .. .. .. ..	184.8	99.22
7	.. .. .. .. ..	186.8	95.23
8	.. .. .. .. ..	186.2	99.18

These figures work out at an average of 96.97, so that the margin of loss from all causes, including broken threads, weaving headings, and strap stretching was only 3.03 per cent.—a result which it is claimed has never been obtained in the weaving shed before. The looms worked at their customary speed, and except for occasional stoppages for broken warps they ran throughout the week without a break. The cloth woven was Horrockses standard longcloth, and the test showed that the increase in production compared with the ordinary loom was from one-half to three-quarters of a "cut" per loom per week.



# COTTON STATISTICS



## U.S.A. Mill Consumption and Mill Stocks.

### COTTON CONSUMED AND ON HAND IN SPINNING MILLS AND IN OTHER ESTABLISHMENTS, AND ACTIVE COTTON SPINDLES.

(Linters not included.)

*Compiled by the Bureau of the Census, Department of Commerce,  
Washington, D.C.*

Cotton consumed, cotton on hand, active cotton spindles, and imports and exports of cotton for the month of April, 1923 and 1924, with statistics of cotton consumed, imported and exported for the nine months ending April 30.†

*(The statistics of cotton in this report are given in running bales, counting round as half bales, except foreign cotton, which is in equivalent 500-lb. bales.)*

Locality	Year	COTTON CONSUMED DURING—		COTTON ON HAND, APRIL 30—		Cotton spindles active during April (number)
		April	9 months ending April 30	In consuming establishm'nts	In public storage and at compres-	
United States	1924	bales *480,010	bales *4,599,374	bales *1,328,273	bales *1,512,080	31,871,005
	1923	576,514	5,040,558	1,878,198	1,985,714	35,512,737
Cotton-growing States ..	1924	327,031	3,081,881	748,043	1,320,559	16,113,421
	1923	303,477	3,195,720	1,072,656	1,655,516	16,073,276
New England States ..	1924	120,629	1,243,050	503,288	97,245	14,109,569
	1923	181,799	1,560,795	698,541	210,938	17,682,132
All other States	1924	28,350	234,443	76,947	88,282	1,648,675
	1923	31,288	284,043	107,001	99,200	1,807,320

\* Includes 20,458 Egyptian, 8,676 other foreign, 4,318 American-Egyptian, and 649 Sea Island consumed, 66,777 Egyptian, 26,977 other foreign, 13,886 American-Egyptian, and 2,561 Sea Island in consuming establishments, and 18,825, Egyptian, 15,569 other foreign, 9,228 American Egyptian, and 2,623 Sea Island in public storage. Nine months' consumption: 175,281 Egyptian, 68,630 other foreign, 25,295 American-Egyptian, and 4,083 Sea Island.

Linters not included above were 42,289 bales consumed during April in 1924 and 52,595 bales in 1923; 130,245 bales on hand in consuming establishments on April 30, 1924, and 179,941 bales in 1923; and 83,344 bales in public storage and at compresses in 1924, and 53,807 bales in 1923. Linters consumed during nine months ending April 30 amounted to 408,972 bales in 1924 and 496,156 bales in 1923.

† The short cable of the May consumption and stock figures is given on p. 555.

## COTTON STATISTICS

589

### IMPORTS AND EXPORTS OF COTTON AND LINTERS

Country of Production	Imports of Foreign Cotton During (500 lbs. bales)-			
	April		9 months ending April 30	
	1924	1923	1924	1923
Total .. .. ..	40,486	87,271	253,942	426,688
Egypt .. .. ..	16,026	16,991	147,700	304,792
Peru .. .. ..	495	1,681	18,886	19,441
China .. .. ..	18,266	14,102	80,002	48,046
Mexico .. .. ..	1,518	284	20,880	45,315
British India .. .. ..	8,543	4,068	25,466	12,924
All other countries .. .. ..	591	145	1,558	1,220

Country to which Exported	Exports of Domestic Cotton and Linters During (running bales)*			
	April		9 months ending April 30	
	1924	1923	1924	1923
Total .. .. ..	820,774	259,984	3,008,181	4,317,889
United Kingdom .. .. ..	67,188	9,722	1,388,087	1,280,801
France .. .. ..	86,042	81,750	684,983	572,864
Italy .. .. ..	27,660	40,059	475,606	441,025
Germany .. .. ..	92,097	76,089	1,075,879	761,971
Other Europe .. .. ..	62,474	27,581	608,882	378,084
Japan .. .. ..	28,206	51,247	518,892	320,520
All other countries .. .. ..	12,107	23,580	162,420	207,974

\* Figures include 9,561 bales of linters exported during April, 1924, and 2,769 bales in 1923, and 74,802 bales for the nine months ending April 30 in 1924, and 33,057 bales in 1923. The distribution for April, 1924, follows: United Kingdom, 1,294; France, 2,018; Germany, 4,042; Belgium, 95; Italy, 469; Canada, 732; Mexico, 11.

### WORLD STATISTICS.

The estimated world's production of commercial cotton, exclusive of linters grown in 1922, as compiled from information secured through the domestic and foreign staff of the Department of Commerce, is 17,540,000 bales of 478 lbs. lint; while the consumption of cotton, exclusive of linters in the United States, for the year ending July 31, 1923, was approximately 20,950,000 bales of 478 lbs. lint. The total number of spinning cotton spindles, both active and idle, is about 157,000,000.

### ELEMENTS IN PRICES OF U.S.A. COTTON GOODS.

In a preliminary report of the Department of Agriculture, Washington, D.C., covering the 1915-23 period, the problem of distribution of the consumer's dollar for four types of cotton goods is treated. The following tabulation, in cents, is based on figures for 1922:

	Sheeting	Gingham	Calico	Percale
Cotton grower .. .. ..	10·8	15·1	20·4	20·1
Assembling and handling, grower to New Orleans .. .. ..	3·1	2·4	2·1	2·0
Transportation, New Orleans to New England .. .. ..	1·3	1·0	1·4	1·3
Manufacturer, selling agent, cotton dealer, misc. handling and carrying	39·3	53·4	46·5	41·6
Jobber and retailer .. .. ..	36·5	28·1	29·6	35·0
	100·0	100·0	100·0	100·0

## INTERNATIONAL COTTON BULLETIN

Table of the Monthly Returns of the Japan Cotton Spinners' Association for the years 1919, 1920, 1921, 1922 and 1923.  
*(Compiled by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester).*

MONTHS	YEAR	No. of Mills	WORKING SPINDLES			Rough Average Counts of Yarn	WEIGHT OF YARN PRODUCED—lbs.			Cotton Consumed in lbs.	Actual Horse Power used per hour in H.P.	A.V. Wages per shift, per hand, in pence							
			Ring	Mule	Total		Ring	Mule	Total			Male	Female	Male & F' male					
January	1923	57	4,075,790	44,261	4,120,051	24.8	20.8	21.5	70,860,657	333,549	71,194,206	81,800,056	65,821	3,734	40,867	132,937	37.50	20,87	
	1922	69	8,620,413	83,144	8,632,502	25.4	21.14	20.8	68,101,446	280,590	68,382,036	60,650	4,120	38,542	110,385	31.15	31,75		
	1921	51	8,087,980	82,039	8,070,019	24.6	19.26	20.1	67,490,195	274,811	57,755,006	67,486,131	4,851	4,110	44,587	105,714	36.67	37,65	
	1920	47	8,208,715	47,978	8,251,603	26.1	21.46	21.5	63,718,550	419,087	64,187,837	74,192,349	9,125	4,487	55,098	107,622	38.10	30,60	
	1919	40	2,988,350	48,291	3,041,776	25.9	22.14	22.8	68,731,732	406,034	59,137,786	68,158,861	67,958	4,082	27,849	91,031	19.87	14,13	
February	1923	57	4,111,801	44,658	4,156,019	24.8	20.16	20.8	74,006,109	498,870	74,444,979	85,404,246	65,682	3,619	39,614	128,101	37.12	20,47	
	1922	59	8,637,729	42,129	8,609,858	25.5	21.20	21.1	70,258,050	389,111	70,047,161	80,817,167	64,049	3,879	38,922	120,937	39.12	31,85	
	1921	50	8,217,460	20,644	8,008,104	24.1	19.60	20.0	66,790,762	300,128	66,062,306	63,506	4,388	34,747	103,841	36.67	27,77		
	1920	49	8,091	40,006	8,268,127	26.6	21.54	21.5	68,985,982	488,066	67,118,943	77,248,120	68,849	4,458	38,732	106,497	39.70	31,67	
	1919	41	2,886,439	48,813	3,035,282	26.2	22.16	22.8	69,127,514	461,540	69,589,054	69,192,894	67,875	3,914	30,755	95,089	20.12	14,49	
March	1923	57	4,127,840	44,544	4,172,384	25.6	19.68	19.9	76,694,125	441,058	77,886,178	87,963,710	62,882	3,553	38,857	126,282	36.82	29.00	
	1922	59	8,587,243	42,761	8,880,004	26.7	21.15	20.9	74,841,798	371,965	75,218,793	85,298,597	65,406	3,782	39,749	120,751	38.57	31,07	
	1921	50	8,015,497	28,278	8,043,775	26.5	19.51	20.1	68,672,388	281,162	68,853,285	68,829,980	62,302	4,506	36,280	105,895	36.20	27.28	
	1920	47	8,285,526	49,685	8,385,111	27.7	21.59	21.6	69,753,060	478,938	70,226,968	78,610,458	68,808	4,124	34,294	100,738	41.42	32,60	
	1919	42	3,077,886	48,947	3,126,283	27.1	22.12	22.4	62,732,778	448,676	68,181,449	71,929,298	68,200	3,891	28,805	96,447	20.27	14,44	
April	1923	53	4,128,884	44,869	4,173,258	26.8	20.47	20.4	70,056,213	505,978	70,562,186	90,488,461	58,078	3,464	39,252	120,098	37.42	29,80	
	1922	60	8,892,135	42,764	8,984,899	27.0	21.16	20.7	77,294,466	396,584	77,691,050	88,204,998	64,406	4,631	38,37	185,722	38.37	30,83	
	1921	50	8,052,884	26,846	8,059,230	25.6	19.40	20.8	60,552,592	298,980	60,851,452	70,547,050	60,494	3,257	34,257	106,481	35.47	27.52	
	1920	49	8,328,882	49,020	8,379,802	27.4	21.87	22.8	70,886,868	498,160	71,826,528	81,189,084	67,940	4,133	34,363	116,826	41.60	31,82	
	1919	43	3,110,816	48,776	3,159,592	27.7	22.08	22.4	64,735,778	482,490	65,218,263	74,858,117	67,402	3,746	20,604	98,822	20.82	14,63	
May	1923	56	4,199,786	45,108	4,244,889	26.5	19.19	20.4	78,863,261	526,765	70,890,026	89,569,581	54,970	3,663	39,173	128,662	36.85	29.20	
	1922	61	3,967,497	42,874	4,010,371	27.7	21.05	20.7	78,262,027	401,080	78,668,117	89,924,450	63,843	3,361	40,383	126,182	38.86	31,22	
	1921	51	3,067,416	26,621	3,094,087	26.5	19.46	20.9	61,982,419	318,452	62,295,871	71,644,816	50,462	3,526	33,978	105,102	35.57	27.52	
	1920	52	3,401,170	50,323	3,451,498	26.4	21.31	22.9	68,017,862	495,069	68,612,431	78,165,204	60,056	3,606	35,815	110,126	40.82	31,80	
	1919	43	3,127,820	48,421	3,176,241	27.9	22.11	21.9	65,967,018	499,950	66,466,968	75,677,576	65,886	3,516	20,604	98,581	20.13	14,13	
June	1923	57	4,258,684	46,111	4,301,795	26.4	19.00	20.5	78,822,865	511,975	78,884,940	89,894,616	53,620	3,889	38,899	127,167	37.07	29,55	
	1922	62	3,989,599	42,790	4,032,805	27.1	21.07	20.8	77,954,668	400,875	78,856,643	89,847,451	62,341	3,411	41,928	184,271	38.80	31,87	
	1921	51	3,068,661	24,811	3,082,876	26.4	19.46	20.8	88,8	61,981,470	287,485	62,218,955	71,886,121	68,657	3,383	42,223	102,716	35.60	27.62
	1920	53	3,877,912	46,039	3,873,950	26.1	20.30	23.8	61,455,820	414,879	61,971,009	70,637,340	63,623	3,842	36,097	118,670	40.87	30,65	
	1919	44	3,187,107	48,305	3,185,412	26.0	22.08	21.4	65,362,898	490,844	65,843,182	74,695,788	65,560	3,549	31,404	100,924	27.25	21,89	

## *COTTON STATISTICS*

591

July	1928	57	4,217,918	44,774	4,262,687	29.5	18.56	20.5	20.0	74,020,920	479,585	75,100,511	84,601,811	51,535	3.201	88,824	125,082	37.02	29.47
	1929	62	4,069,694	41,061	4,069,694	27.8	21.11	20.7	20.9	74,408,861	384,812	74,793,678	84,682,172	50,573	3.272	41,080	134,005	30.30	31.60
August ..	1921	53	5,052,356	25,670	5,073,016	28.1	19.38	20.0	21.0	57,126,235	284,924	57,891,159	65,507,815	57,973	3.488	57,973	90,852	35.70	27.75
	1920	58	3,124,830	89,172	3,168,862	26.0	19.28	22.0	21.0	62,660,685	320,662	62,881,427	60,642,721	69,880	3.918	38,903	111,836	87,87	28.12
September ..	1919	45	3,125,449	48,138	3,173,546	27.4	22.08	21.1	24.1	61,840,736	459,324	62,300,060	70,645,900	68,007	8.609	31,308	101,948	28,86	22.98
	1928	57	4,167,561	44,728	4,215,289	25.8	18.51	20.5	20.5	70,417,678	476,799	70,894,477	81,204,258	50,826	3.318	88,108	120,548	35.97	21.47
October ..	1922	62	3,980,392	41,954	3,972,346	27.5	21.17	20.4	25.8	72,970,989	361,467	78,343,636	88,197,302	66,087	3.221	41,702	130,988	38,87	31.35
	1921	53	2,873,724	25,709	2,999,433	26.1	19.51	83.9	44.0	55,828,821	271,009	56,094,886	64,026,171	57,988	3.868	38,238	96,376	38,75	28.07
November ..	1919	45	3,090,088	47,545	3,081,109	25.0	19.80	22.0	21.0	51,500,121	288,810	51,853,931	50,380,456	58,818	3.680	32,384	104,026	37,72	27.95
	1928	57	3,829,107	12,239	3,941,346	26.2	18.42	20.8	62.9	68,891,803	361,402	58,431,085	66,138,088	51,819	3.301	31,108	93,137	86,60	29.37
December ..	1922	62	3,944,317	42,288	3,986,705	26.4	21.18	20.3	26.4	72,709,224	351,479	78,083,703	83,129,389	57,887	3.108	42,384	131,174	38,57	41.00
	1921	53	3,152,244	28,047	3,180,201	26.4	19.52	21.0	21.50	60,006,369	277,647	60,883,016	69,287,207	67,010	3.425	41,810	103,469	38,74	29.02
TOTALS..	1920	58	2,925,080	35,308	2,960,388	25.0	19.20	21.8	36.2	53,243,086	280,143	53,628,300	61,376,746	58,586	3.046	32,050	104,618	38,20	28.46
	1919	45	3,180,953	48,406	8,229,837	26.2	21.52	21.2	22.8	65,380,740	605,762	65,830,502	74,508,650	62,058	8.581	32,266	105,173	30,12	26.18
Monthly	1928	57	3,708,466	15,819	8,725,225	26.0	18.53	21.3	35.9	69,706,517	98,195	69,804,712	80,279,250	55,415	3.331	34,749	106,875	86.85	20.40
	1929	61	4,076,861	42,166	4,118,807	26.7	21.00	20.2	26.4	78,804,500	381,778	79,186,868	90,802,677	62,000	3.310	42,486	137,036	38,40	30.72
Average ..	1921	54	3,817,525	81,705	3,849,280	26.4	20.0	20.9	44.4	65,082,745	300,761	65,335,906	75,571,489	60,168	3.570	38,705	108,831	38,72	30.12
	1920	58	3,048,756	86,784	2,985,640	26.8	19.41	20.1	38.9	55,652,016	300,464	55,856,480	64,617,898	60,082	3.819	38,418	106,659	38,20	28.43
November ..	1919	47	3,190,357	48,793	3,230,150	27.6	21.59	21.4	22.4	63,046,195	491,112	68,536,248	77,841,624	60,533	3.668	32,421	107,500	34,40	27.10
	1928	54	3,825,312	15,913	3,814,225	26.2	18.48	20.9	36.0	72,321,022	108,951	72,479,973	82,829,650	55,904	3.297	36,093	111,061	37,42	20.60
December ..	1922	61	4,102,646	42,760	4,145,800	26.8	20.66	20.1	20.2	80,892,281	383,010	81,276,291	93,210,929	61,399	3.280	44,244	142,471	37,92	30.30
	1921	54	3,891,511	31,201	3,422,712	26.6	20.07	20.7	44.2	68,188,818	805,705	68,445,518	78,729,665	61,780	3.860	38,668	112,614	37,92	30.22
TOTALS..	1920	58	2,987,839	36,852	8,024,601	26.0	19.53	20.4	38.5	62,643,812	340,752	62,903,601	68,041,836	60,375	3.884	38,894	106,084	37,73	28.47
	1919	45	3,263,399	48,975	3,812,274	27.8	21.54	21.0	22.8	71,205,864	502,414	71,707,778	81,874,585	68,307	3.970	33,351	106,325	37,60	20.78
Monthly	1928	57	3,860,603	13,706	3,883,309	26.0	18.48	21.7	38.8	72,231,193	116,135	72,231,103	82,322,794	56,714	3.518	38,180	115,637	38,12	20.95
	1922	60	4,069,855	42,504	4,102,160	26.4	20.28	20.3	28.5	76,707,970	343,861	77,002	83,019	42,106	3.234	37,992	132,681	38,59	31.96
Average ..	1921	54	3,524,425	36,092	3,660,617	26.8	20.25	20.7	45.0	72,001,652	806,821	72,308,478	83,808,212	67,908	3.968	37,585	118,030	38,60	31.10
	1920	58	3,048,556	88,713	8,077,279	26.1	19.87	20.1	39.8	68,616,254	881,713	68,946,947	72,894,939	62,033	3.203	34,286	107,140	37,34	28.25
November ..	1919	47	3,279,851	40,548	3,830,400	27.7	21.52	22.0	23.1	72,639,769	505,960	73,045,720	83,458,157	70,741	3.084	34,894	113,034	38,40	30.32
	1928	54	4,001,729	34,727	4,086,456	26.0	18.12	20.6	25.2	72,967,711	339,754	72,971,465	83,607,612	56,890	3.455	37,767	120,438	38,12	20.51
December ..	1922	61	3,925,538	41,727	3,967,205	26.0	20.0	20.6	28.5	75,267,817	872,677	75,807,160	86,478,978	63,062	3.520	11,161	132,681	38,59	31.96
	1921	54	3,183,647	28,800	3,162,353	26.3	19.61	20.4	40.4	61,886,767	200,426	61,927,746	70,874,213	61,236	3.801	34,904	105,701	38,38	28.85
TOTALS..	1920	58	3,149,107	42,645	3,191,752	26.8	20.28	21.8	27.4	61,666,052	388,406	62,054,458	70,829,176	63,751	4.089	38,905	106,781	38,80	20.89
	1919	44	3,180,936	45,582	3,179,558	27.4	21.90	21.7	24.0	64,808,245	477,990	65,281,235	74,352,591	68,531	3.768	31,186	101,538	27,88	21.75
Average ..	1918	40	2,859,282	47,286	2,936,608	27.0	22.15	22.2	28.4	60,686,692	432,598	61,046,221	70,593,538	67,108	3.680	26,700	95,060	17,13	11.90
	1923	51	3,111-6	875,492,529	4,077,052	908,213,802	4,472,122	3,491,755	4,660,524	100,065,924	730,552,957	744,658,499	5,785,580	5,785,944	879,589,581	1,002,060,150	30,30	31.60	
TOTALS..	1921	311-8	1920	310-1	1919	328-5	1918	324-1	1918	730,041,202	739,892,626	4,680,573	743,374,826	830,480,559	847,650,110	802,231,087	847,122,389	30,30	31.60

## INTERNATIONAL COTTON BULLETIN

## RAW COTTON IMPORTED INTO JAPAN

	July		August		September		October	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
From :	piculs	yen	piculs	yen	piculs	yen	piculs	yen
British India ..	486,802	25,610,303	332,435	17,024,286	43,867	2,208,132	78,282	4,203,893
U.S.A. ..	118,284	8,094,043	174,803	11,905,723	22,143	1,149,283	97,540	6,651,793
China ..	25,979	1,283,843	17,834	879,110	17,616	743,849	74,056	3,808,507
French Indo-China ..	3,521	170,988	53	893	—	—	—	—
Africa ..	4,938	485,176	2,000	236,000	302	15,052	430	28,800
Dutch Indies ..	205	9,100	153	7,516	822	15,042	—	—
Siam ..	—	—	—	—	807	7,264	—	—
Straits Settlements ..	384	5,035	242	8,814	5,209	296,156	2,877	39,883
Others ..	94,902	7,166,699	65,551	4,881,306	21	1,713	—	—
Ginned Cotton ..	732,493		612,192		85,512		249,481	
Seed Cotton ..	3,610		771		4,375		3,724	
Seed Cotton ..	870	42,825,297	237	33,842,650	1,527	4,726,490	1,241	14,732,376
Total Ginned Cotton ..	739,360		612,449		87,039		250,722	
In Bales of 300 kin ..	214,453		204,149		29,013		83,574	

1 Picul = 132.27 lbs. = 100 kin.

## COTTON YARN EXPORTED FROM JAPAN

	July		August		September		October	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
To :	piculs	yen	piculs	yen	piculs	yen	piculs	yen
China ..	18,724	2,005,730	26,596	2,732,017	29,116	3,041,231	16,812	1,022,536
Hong Kong ..	9,307	922,580	13,141	1,219,041	14,648	1,333,636	6,206	594,027
Philippine Islands ..	733	77,580	735	85,382	618	59,870	400	33,035
Kwantung (China) ..	917	91,870	2,509	232,041	4,108	347,597	763	73,820
U.K. ..	—	—	—	—	—	—	—	—
British India ..	11,731	1,162,237	17,909	2,020,932	16,751	1,902,274	8,660	1,175,203
Asiatic Russia ..	122	9,786	122	10,928	146	11,503	132	12,386
Dutch Indies ..	1,135	111,535	808	83,992	1,281	110,738	2,733	262,249
Others ..	2,843	296,233	2,958	248,438	1,731	169,747	902	86,641
Total in piculs ..	45,532	5,057,355	65,008	6,682,971	68,099	8,970,665	36,718	4,190,737
(Bales of 300 kin)	15,177		21,660		22,800		12,240	
20's and below ..	16,090	1,365,310	30,480	33,918	—	—	15,165	
(Bales of 300 kin)	5,306		10,100	2,548,711	11,306	2,815,471	6,031	1,306,411
21's and above ..	20,433	3,692,045	34,528	34,781	4,161,104	21,563	7,187	2,884,926
(Bales of 300 kin)	9,811		11,500	4,134,280	11,503			

1 Picul = 132.27 lbs. = 100 kin.

Yen - 25d.

## DURING THE SECOND HALF OF 1923

November		December		Total		1st half. 1923		2nd half. 1922	
Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
piculs	yen	piculs	yen	piculs	yen	piculs	yen	piculs	yen
113,856	6,160,681	161,300	8,693,380	1,288,142	64,740,765	3,907,164	198,285,397	2,001,812	91,216,102
296,201	20,549,749	240,879	16,987,681	951,740	65,698,274	1,572,983	111,912,469	935,381	59,907,123
189,398	7,892,263	143,378	7,717,988	418,261	21,824,860	341,083	17,398,154	404,197	18,961,966
—	—	64	1,158	3,638	178,039	10,839	443,023	26,636	721,809
3,275	271,970	14,730	1,770,014	25,716	2,806,012	157,388	16,783,248	48,271	4,321,660
—	—	54	2,490	736	34,148	7,560	175,130	17,763	279,308
—	—	697	27,665	1,504	34,929	—	—	—	—
10,229	131,350	7,307	97,902	26,248	568,669	17,424	251,588	7,287	116,107
175	2,891	—	—	160,739	12,052,608	5,027	99,148	3,864	48,123
580,454		657,743		2,787,877		5,980,823		3,404,30	
16,180		10,686		38,848		38,655		40,880	
5,493	34,508,913	9,502	35,237,578	12,950	107,873,304	12,885	345,209,154	13,627	175,572,198
555,947		561,305		2,800,822		5,993,708		3,417,957	
185,815		187,101		933,605		1,997,901		1,139,316	

## DURING THE SECOND HALF OF 1923

November		December		Total		1st half, 1923		2nd half, 1922	
Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
piculs	yen	piculs	yen	piculs	yen	piculs	yen	piculs	yen
24,042	3,927,642	12,310	1,711,630	127,929	14,731,415	236,774	23,771,586	241,031	23,238,153
9,197	878,102	3,866	308,629	50,365	3,344,624	63,960	6,190,109	90,060	8,728,561
197	24,589	131	12,489	2,924	393,340	3,878	448,092	3,813	400,488
718	71,713	633	70,400	9,738	887,941	32,977	2,903,780	33,157	3,089,503
—	—	—	—	—	—	—	—	—	—
17,205	2,013,328	18,063	2,188,541	91,001	10,771,575	85,811	9,740,309	123,118	12,074,746
93	8,631	8	781	623	54,235	—	—	298	50,737
1,260	117,593	671	93,957	7,948	782,064	5,673	582,390	—	—
1,837	176,694	1,201	126,811	11,582	1,133,267	7,701	737,714	9,338	830,234
54,569		37,584		308,110		436,864		509,811	
18,190	6,515,192	12,528	4,603,061	102,703	34,027,981	145,821	44,483,980	169,938	48,398,444
22,634		18,015		136,301		268,032		339,620	
7,546	2,057,808	6,005	1,686,313	45,434	11,780,024	89,344	22,544,995	113,207	28,136,000
31,935		19,569		171,709		168,832		170,191	
10,645	4,457,384	6,382	2,918,748	57,269	22,247,957	56,277	21,939,885	56,731	20,862,444

**Japan's Weaving Statistics**  
as published by the Japan Cotton Spinners' Association, Osaka.

No. of Looms	Working days	Working hours	Production	Production per day per loom	Yarn Consumed	Waste yarn	Number of Hands		Average Wages per hand	
							Male	Female	Male	Female
53,517	148.0	18.12	503,265,968	av. yds. 58.90	120,978,065	Ibs. 1,754,216	av. p. day 7.879	av. p. day 40.791	yen 1.489	yen 1.167
62,219	163.7	12.32	444,469,988	48.26	106,827,868	1,782,882	7.047	38.416	1.664	1.218
49,846	149.5	12.39	424,857,684	49.24	104,500,187	1,728,809	7.766	37.788	1.559	1.236
43,771	160.2	12.09	357,985,169	47.84	99,819,981	1,468,066	6,681	31,760	1.624	1.181
44,447	140.7	11.51	342,712,786	45.48	86,807,570	2,624,681	7,175	32,587	1.459	1.110
44,040	167.5	11.51	382,439,786	48.01	90,852,060	1,836,060	7,725	37,018	1.516	1.110
45,280	156.3	13.37	399,597,574	49.01	98,799,260	2,100,985	8,284	41,078	1.628	1.238
43,483	165.8	14.19	390,477,888	48.96	98,484,928	1,934,890	8,741	39,588	1.847	1.072
39,455	155.8	13.98	355,477,883	49.86	86,363,037	1,538,292	9,628	34,241	1.919	1.706
37,430	165.1	18.51	330,006,344	60.79	81,076,770	1,907,088	5,798	20,150	—	—
35,859	142.7	14.05	328,929,076	63.14	79,234,789	1,116,112	5,268	29,276	608	491
32,710	160.9	13.12	301,544,066	62.94	72,467,403	1,046,124	4,588	23,525	611	465
31,180	160.2	18.17	298,105,853	55.48	70,808,355	1,010,869	4,077	24,343	554	424
30,258	168.6	13.12	276,659,943	64.87	67,272,892	8,764	22,733	—	—	—
29,962	159.8	18.15	283,551,160	59.14	69,140,516	996,563	8,710	25,756	532	404
28,490	154.9	18.04	254,519,462	65.28	62,460,856	1,188,867	8,586	23,639	526	378
26,954	161.7	13.04	747,557,169	65.93	62,172,276	8,607	22,820	—	—	—
25,722	161.1	13.32	226,989,494	64.22	62,160,984	1,329,856	8,561	22,592	679	372
24,100	169.2	18.40	27,902,240	68.75	61,703,082	1,571,829	8,577	22,326	681	374
23,628	163.2	13.30	212,069,361	65.14	66,821,582	1,614,871	8,381	21,873	582	369
20,675	163.8	13.19	204,655,993	65.28	54,888,084	1,519,204	3,264	22,043	—	—
20,635	160.5	13.04	177,253,849	64.58	49,285,803	1,367,476	2,878	18,383	509	364
19,781	157.8	13.40	165,830,896	63.60	44,306,918	1,324,941	2,716	17,678	486	318
18,284	158.4	14.28	147,739,064	50.84	41,825,240	1,324,816	2,651	16,890	478	324
17,484	149.8	14.28	141,800,607	51.81	40,667,296	1,368,229	2,760	17,406	—	—
15,883	160.1	14.00	120,529,946	47.42	37,641,661	1,330,815	2,925	18,190	464	326
18,988	160.5	14.20	105,784,012	49.06	33,555,998	1,209,845	2,047	18,383	481	303
12,150	157.4	15.40	90,944,196	48.28	28,782,462	1,286,658	2,002	11,593	461	312
11,019	160.2	13.48	91,032,776	52.39	28,806,124	1,288,558	1,789	11,398	—	—
9,695	162.2	18.00	73,604,538	47.89	24,275,618	1,019,112	1,635	8,552	449	296
9,295	154.7	13.54	73,080,315	48.19	23,400,814	1,024,387	8,514	8,552	441	300

Yen = 25 pence.

# COTTON STATISTICS

595

## YARN IMPORTED INTO JAPAN DURING SECOND HALF, 1923.

	July	August	Sept	Oct.	Nov	Dec	Total	1st half, 1923	2nd half, 1922
Quantity in kin	10,695	60,802	6,973	74,083	437,069	1,219,912	1,848,604	106,279	141,192
Quantity in bales of 300 kin	63	22	23	246	1,456	4,166	5,973	354	471
Value in yen ::	53,688	124,423	13,410	150,780	403,020	1,228,844	1,976,175	231,336	314,800

Kin = 1.3227 lb.

## RAW COTTON CONSUMED IN JAPAN

	Indian	American	Chinese	Egyptian	Annam and Saigon	Korean	Others	Total
1st half, 1923	kwan	kwan	kwan	kwan	kwan	kwan	kwan	kwan
2nd " 1922	40,263,923	18,974,670	1,586,587	1,418,481	94,990	962,077	154,189	63,754,817
1st " 1922	38,545,001	22,432,019	278,334	1,192,838	289,188	413,011	416,808	68,570,809
2nd " 1921	33,281,061	24,339,038	156,788	1,185,508	378,498	589,541	264,815	62,175,261
1st " 1921	30,588,699	20,098,990	120,580	981,154	895,198	681,602	243,864	58,105,337
2nd " 1920	32,056,114	18,472,044	243,951	770,906	75,231	387,727	173,659	50,160,282
1st " 1920	28,080,723	16,394,962	1,027,480	506,003	34,233	452,427	321,766	46,797,674
2nd " 1920	29,865,047	20,849,485	2,654,674	880,022	210,693	697,118	923,346	55,480,283
1st " 1919	25,890,178	21,678,204	0,314,283	958,542	118,377	784,987	254,311	55,388,832
1st " 1919	19,867,649	20,992,502	9,402,140	912,127	158,458	839,800	950,151	52,328,627
2nd " 1918	24,902,389	18,159,563	6,177,480	882,548	152,795	725,116	276,337	49,676,859
1st " 1918	30,068,978	15,485,462	4,799,178	889,773	229,086	689,777	536,471	52,711,022
2nd " 1917	35,259,438	14,727,676	2,500,096	883,777	262,912	603,852	223,151	51,360,732
1st " 1917	35,003,002	14,329,713	2,576,601	882,274	182,066	479,695	298,166	54,352,503
2nd " 1918	35,580,323	14,060,794	1,287,908	1,025,618	699,504	277,507	215,287	52,997,137
1st " 1918	26,095,860	14,213,111	2,302,823	944,989	488,796	581,888	294,904	54,473,391
2nd " 1915	34,620,990	13,066,590	1,365,364	833,650	177,592	—	832,969	50,397,201
1st " 1915	32,487,478	12,017,723	841,829	778,702	139,238	—	266,890	46,541,345
2nd " 1914	33,812,417	8,843,414	1,032,934	883,341	393,233	—	275,249	45,790,590
1st " 1914	32,111,822	11,604,398	2,750,161	986,037	285,832	—	583,812	45,272,302
2nd " 1913	28,709,626	11,357,728	1,942,337	1,047,465	502,344	—	162,227	43,781,777
1st " 1913	23,452,634	12,985,194	3,062,220	956,528	403,926	—	334,941	41,784,886
2nd " 1912	23,948,657	12,452,662	2,105,494	978,112	278,120	—	230,690	39,988,735
1st " 1912	20,218,895	13,357,488	1,693,062	887,275	170,126	—	182,237	36,859,088
2nd " 1911	18,688,399	8,656,922	4,022,845	803,917	87,714	—	233,752	33,088,549
1st " 1911	17,052,391	4,727,987	8,001,170	816,866	182,828	—	284,790	31,616,039
2nd " 1910	22,058,798	8,425,802	5,719,532	501,432	168,625	—	250,017	32,213,704
1st " 1910	22,878,280	4,909,479	8,786,785	778,584	410,217	—	459,061	33,017,889
2nd " 1909	19,887,865	5,894,196	3,610,583	747,683	370,792	—	380,782	30,300,851
1st " 1909	17,446,392	6,740,970	2,789,284	822,864	384,168	—	243,791	28,427,464
2nd " 1908	18,912,676	6,226,788	3,880,265	683,901	590,171	—	178,623	24,423,326
1st " 1908	13,771,451	6,254,176	5,256,640	494,840	268,828	—	321,428	26,366,827
2nd " 1907	16,719,217	5,715,788	3,684,679	427,742	415,849	—	120,687	27,088,362
1st " 1907	15,189,328	7,680,181	4,412,384	413,274	187,916	—	316,814	28,130,397
2nd " 1906	13,886,800	7,472,423	4,895,061	388,518	102,426	—	256,632	26,501,855
1st " 1906	11,781,484	6,846,704	7,291,285	417,761	220,144	—	258,587	26,810,965
2nd " 1905	13,102,554	7,287,786	4,407,898	466,311	261,291	—	187,772	25,608,615
1st " 1905	12,781,195	7,675,679	4,071,584	427,562	53,266	—	201,069	25,101,845
2nd " 1904	8,234,888	2,548,562	9,072,288	424,097	550,394	—	285,529	21,118,738
1st " 1904	9,221,533	1,928,236	6,284,898	457,498	204,490	—	248,768	18,845,368
2nd " 1903	16,228,436	2,632,626	3,446,686	482,434	648,760	—	200,147	28,047,139
1st " 1903	10,178,484	5,388,809	6,359,744	514,641	215,933	—	521,388	23,182,049

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**REVIEWS.**

“THE EMPIRE COTTON GROWING REVIEW.” A short notice of the first number of this new quarterly of the Empire Cotton Growing Corporation appeared in the last BULLETIN. Whilst the first number was largely historical, the second one contains very valuable contributions of the scientific investigations and of the commercial developments in all parts of the world where cotton is grown. Of special interest is the published lecture of Dr. W. Lawrence Balls, F.R.S., on his recent discoveries in connection with the growth rings and spiral structure of the cotton hair, which may lead in an important manner towards the proper cultivation of cotton and towards the improved mechanical treatment of the fibre, and this new knowledge of the finer elements of the cotton hair is sure to have a bearing on the chemical treatment of the fibre. Most valuable to the busy man are the “Notes on Current Literature,” amongst which will be found excerpts on the many interesting cotton topics dealt with in books, pamphlets and the Press. The journal can be strongly recommended to all cotton spinners, merchants and growers; its price, 5s. annual subscription, post free, is remarkably low and should induce many, not only in Great Britain and her Colonies, to become regular subscribers.

“FUTUROS DE ALGODÓN,” by Francisco de P. González Palou. The author has compiled a book of some 300 pages in which, in the first instance, he dwells on the necessity of cultivating cotton in Spain, where the Moors were undertaking this work on an extensive scale up to the nineteenth century. Recent experiments there have been very promising indeed. The conditions of cultivation in America are dealt with and considerable space is taken up with the technicalities of the purchase and sale of cotton. The book is written entirely in Spanish and will, no

doubt, be read with great interest in Spain and the South American Republics. There are a number of illustrations in the book. The publishers are "Editorial Cultura," Apartado 782, Barcelona.

"STATISTICAL ANALYSES OF THE COTTON INDUSTRY." The Merchants' National Bank of Boston, Mass., has for a number of years maintained a statistical cotton service under the able management of Mr. Alston H. Garside, as a branch of the Industrial Service Department. A loose-leaf folder, containing past statistics on cotton, has now been issued, and the Bank plans to provide every week current figures on practically all subjects concerning the movements into sight, spinners' takings, prices and manufacturing margins, exports and imports of yarn and cloth, and the activity of the cotton manufacturing industry. These weekly data can be conveniently added on the sheets of the loose-leaf folder, in order that it forms at all times a convenient reference book. It is a very practical method of presenting ever-changing information. The subscription to the enlarged statistical service is 100 dollars per annum, except for the customers of the Bank with compensating balances, who receive it free of charge.

"DUSTING COTTON FROM AIRPLANES" is the title of *Bulletin No. 1,204* of U.S.A. Department of Agriculture. The development of the use of aeroplanes for the purpose of dusting cotton fields with insecticides against boll-weevil and leaf-worm are described and very interesting illustrations are given. The results achieved so far do not indicate that these machines will be extensively used in the next cotton season, although it has been proved that one plane will operate during four hours a day as large an area as 40 cart dusting machines, which so far have the greatest dusting capacity. Whilst the cost of an aeroplane dusting is calculated to be 153 dollars for four hours, the cost of the necessary cart machines to cover the same area as the plane is estimated to be at least 236 dollars. The author's conclusions are :

"The studies which have been described are far from deciding on the practicability of using the airplane for applying insecticides, but they have shown that the dust can be blown down among the plants from the air above them and that this dust can be made to adhere to the plants under daytime conditions when place operation is feasible. The planes can be manipulated so that all portions of the field are treated. In fact, the cotton leaf-worm was controlled with a poison allowance considerably below that necessary when using ordinary dusting machines. Whether this application was sufficiently thorough to control the boll-weevil is quite another question, since weevil control requires a much more thorough application than is necessary to control the leaf-worm, but all records bearing on this question appear to furnish decidedly favourable indications of success.

"Financially the use of the airplane does not seem to be out of the question, and in fact there is considerable possibility of pronounced economy as compared with the ground machines. It has the advantage of centralizing the control of the operation and placing it on a more skilled basis, which would undoubtedly greatly tend to increase the quality of the results secured. On the other hand, no farmer can afford to buy a single plane and figure on dusting his cotton, since it is not safe to place all the eggs in one basket in this manner. Motors will go wrong, and cotton poisoning is an operation which cannot be delayed when needed.

The operation could be only considered as a community affair or for planters whose acreage would be large enough to justify purchasing more than one plane. In reality, to organize in safety, one plane should be provided in reserve for every one or two which are kept in flight.

"All of these are questions which can be worked out only by time and trial, but many districts in the South have now reached the point in public sentiment where the desirability of community weevil control can be seen, and it is only by some such method as the use of the airplane that such community poisoning can be attempted in the near future."

"NINETEENTH ANNUAL REPORT OF THE BRITISH COTTON GROWING ASSOCIATION" The report just issued shows a very profitable year and that progress is being made in many directions. The approximate estimate of cotton grown in new fields in the British Empire (bales of 400 lbs.) is given as follows:

1917	1918	1919	1920	1921	1922	1923
72,600	54,900	79,600	105,800	165,100	103,100	178,200
£2,700,000	£2,849,000	£5,593,000	£8,617,800	£8,929,000	£2,716,000	£5,503,000

Increases took place in most countries, but Uganda more than doubled the preceding year's output.

"BLUE BOOK OF SOUTHERN PROGRESS" is not only a book to "boost" the Southern States of U.S.A., but it contains a good collection of Government statistics relating to the Cotton Belt in general. Amusing to many Lancashire cotton spinners will be the reading of the article, "The World can have its cotton but not unless it will pay the price, a century of futile effort by Europe to lessen its dependence upon the South for cotton." Some of the headings of this article will suffice to indicate the attitude taken. "Lancashire has talked for 100 years about more cotton, but never in behalf of a better price in order to secure it." "The boll-weevil, by turning Southern farmers to diversified agriculture, will prove a blessing to the South." The book is published by the *Manufacturers' Record*, Baltimore.

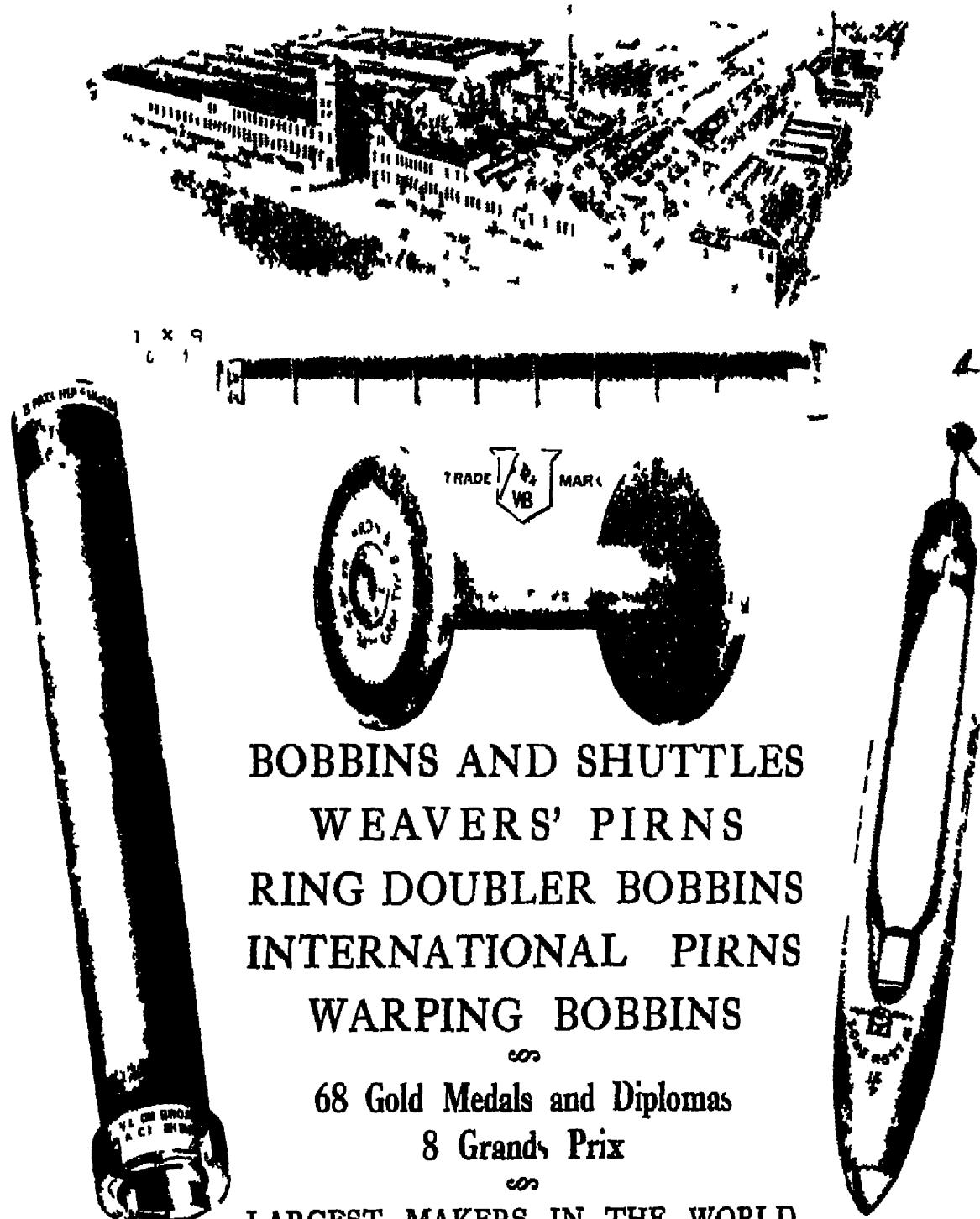
The International Labour Office at Geneva has issued its first volume of the official "BULLETIN". This publication contains documents relating to international labour legislation and will form an authoritative book of reference on these matters.

"THE JOURNAL OF THE TEXTILE INSTITUTE," Vol. XV, No. 5, May, 1924, is specially interesting on account of the report on "The Shortage of Labour in the Lancashire Textile Industry."

The General Cotton Committee of Moscow have issued so far two books entitled "KILOPCOVOYE DILO" dealing with interesting subjects relating to cotton growing in Turkestan, America, the Russian cotton industry, etc. Unfortunately, the whole of the book is in Russian, but for those especially interested it may be worth their while to get translations made of some of the articles.

"AGRICULTURAL STATISTICS OF INDIA, 1921-22" Volume I has just been published and is full of interesting figures relating to area, classification of area, area under irrigation, area under crops, live stock, land revenue assessment and harvest prices in British India. The belated issue of such figures renders the book useful mainly to the historian and of little value to the commercial man.

(<sup>1</sup>)  
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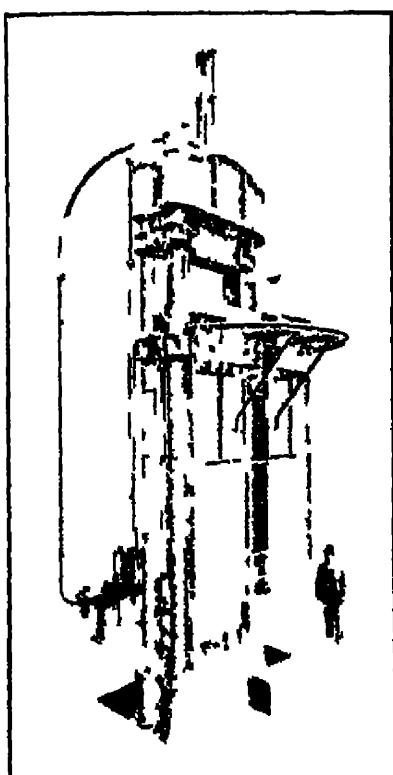
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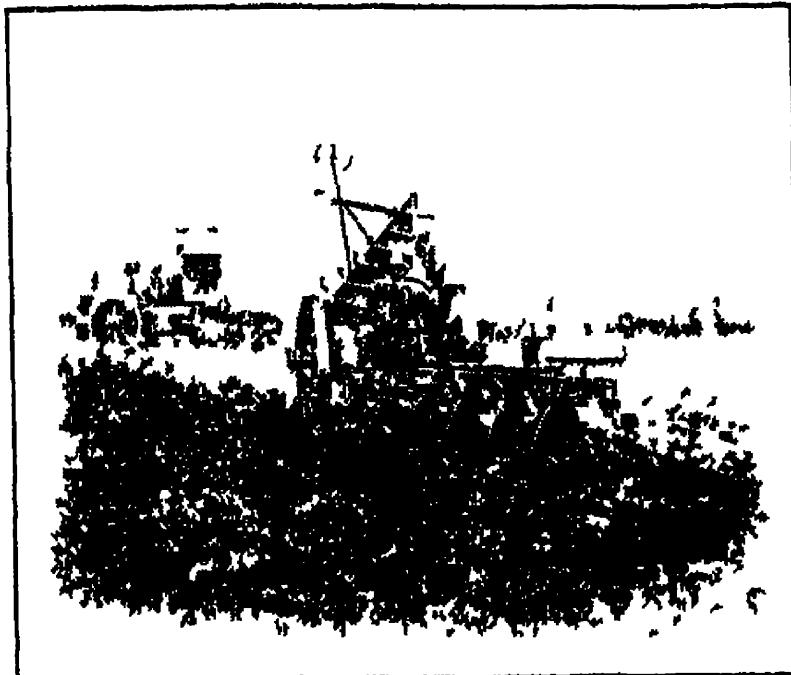
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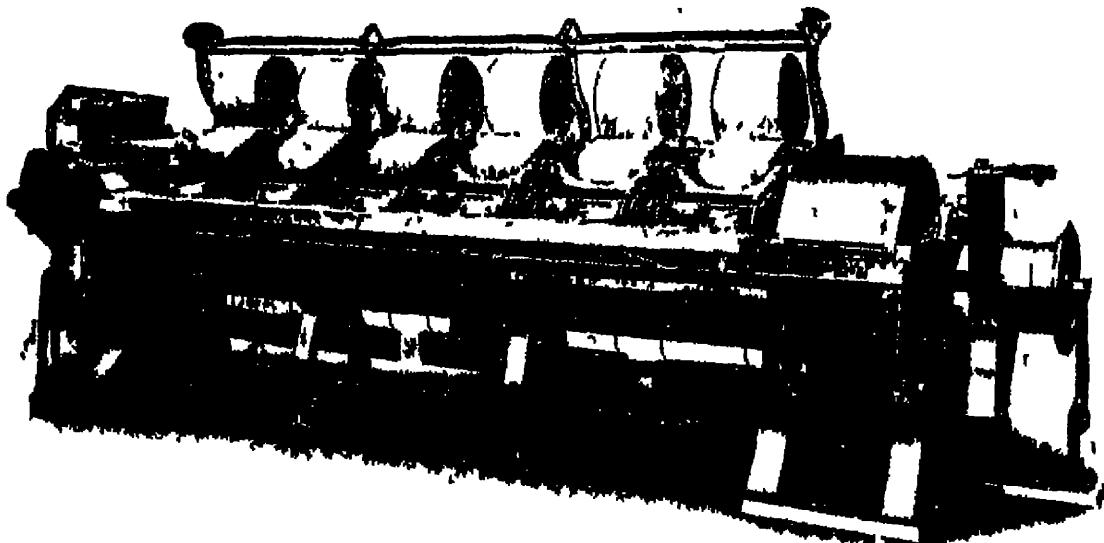
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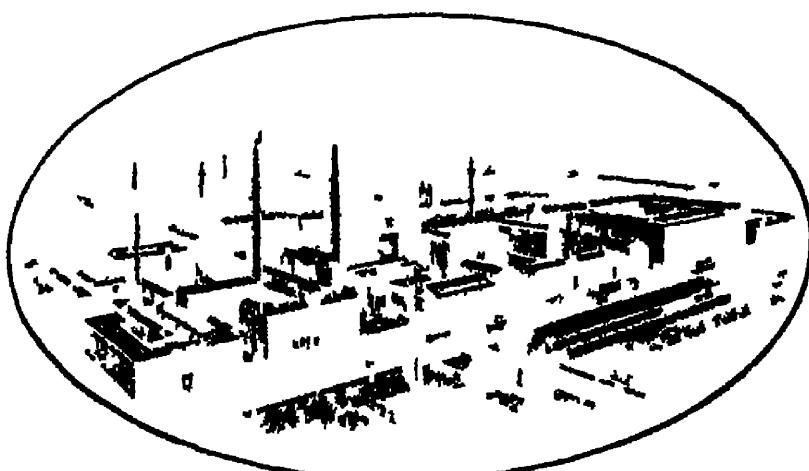
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INTERNATIONAL COTTON BULLETIN, official organ of the International Federation, issued every quarter. Per year	...	...	...	...	1	0	0

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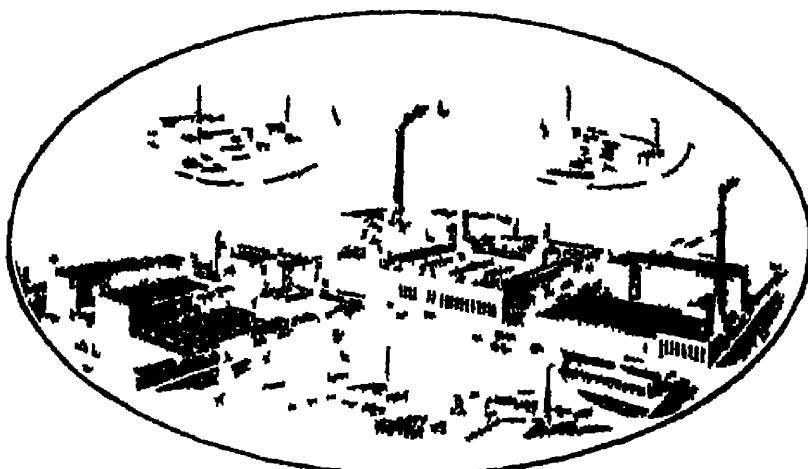
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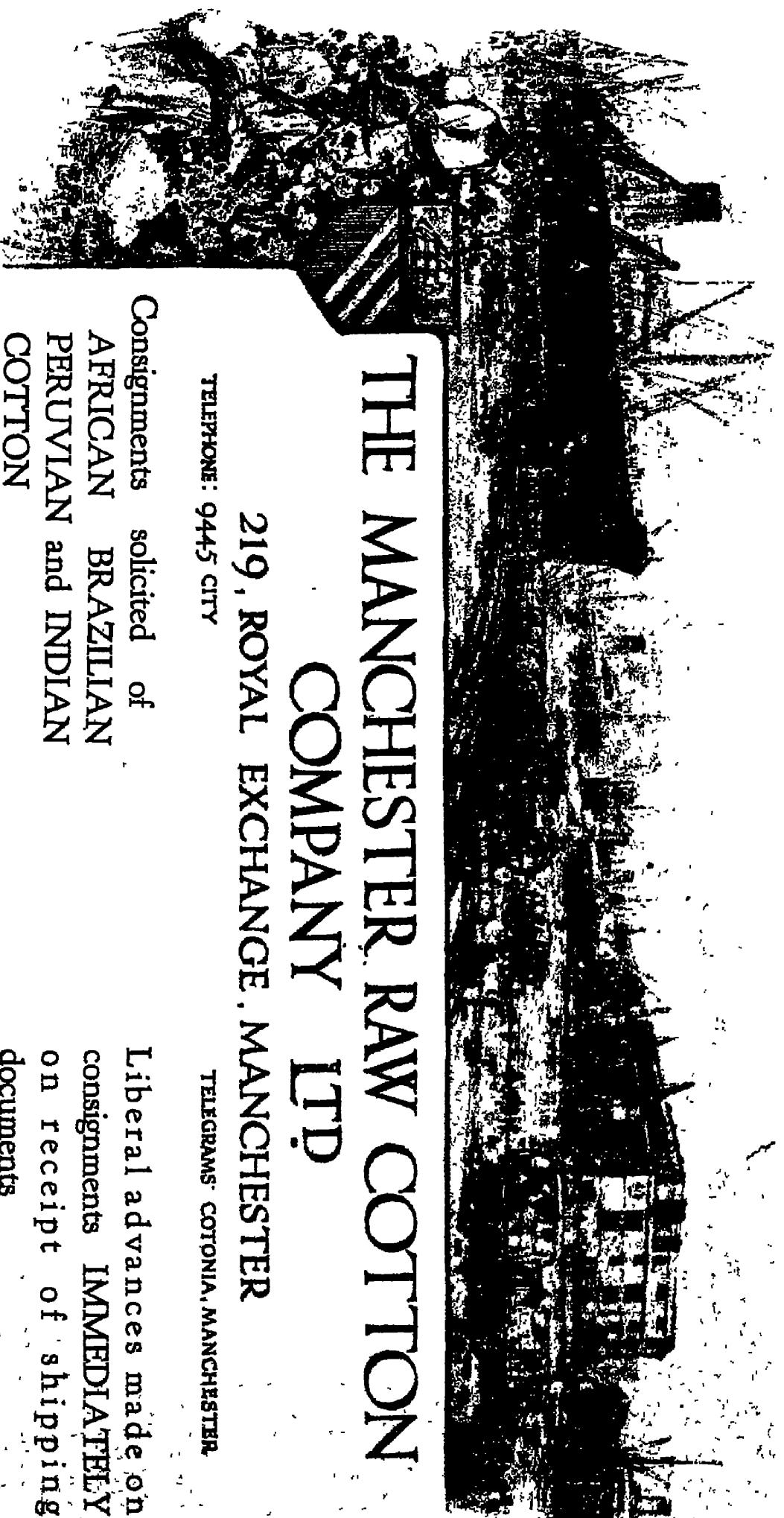
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